



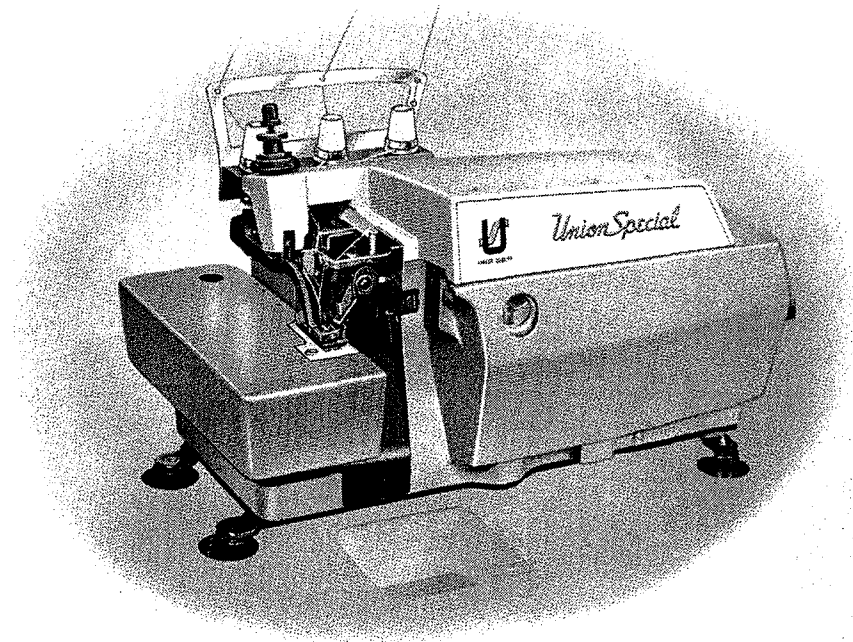
*Union Special*<sup>®</sup>  
INDUSTRIAL SEWING EQUIPMENT

## STYLES

39500FA  
39500FB  
39500FP  
39500FY  
39500GA  
39500GF  
39500GS  
39500JE  
39500JF  
39500JG

## ADJUSTING INSTRUCTIONS AND ILLUSTRATED PARTS LIST

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CATALOG  
NO. 103FA

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39500 CLASS HI-STYLED HIGH SPEED SINGLE  
NEEDLE THREAD DIFFERENTIAL FEED  
OVERSEAMING MACHINES

SECOND  
EDITION

**SECOND EDITION**  
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## IDENTIFICATION OF MACHINES

Each Union Special machine is identified by a Style number on a name plate on the machine. Style numbers are classified as standard and special. Standard Style numbers have one or more letters suffixed, but never contain the letter "Z". Example: "Style 39500 FA". Special Style numbers contain the letter "Z". When only minor changes are made in a standard machine, a "Z" is suffixed to the standard Style number. Example: "Style 39500 FAZ".

Styles of machines similar in construction are grouped under a Class number which differs from the Style number in that it contains no letters. Example: "Class 39500".

## APPLICATION OF CATALOG

This catalog applies specifically to the standard Styles of machines as listed herein. It can also be applied with discretion to some Special Styles of machines in Class 39500. References to directions, such as right, left, front, back, etc., are given from the operator's position while seated at the machine. Operating direction of handwheel is away from operator.

## STYLES OF MACHINES

Restyled High Speed Single Curved Blade Needle, Two Looper, Three Thread, Overseaming Machine. Differential Feed, Trimming Mechanism with Spring Pressed Lower Knife, Automatic Lubricating System.

39500 FA Light to medium duty machine for seaming light and medium weight flat, warp, and ribbed knit fabrics of cotton, silk, or similar weight synthetics. The sewing combination has been designed especially for use on women's and children's slips, pajamas, nightgowns, or similar articles where long straight hanging seams are a primary requisite. Seam Specification, 504-SSa-1; standard seam widths, 3/32 and 1/8 inch; stitch range, 8-30 per inch; cam adjusted main and differential feeds. Maximum recommended speed 7000 R.P.M.

39500 FB Light to medium duty machine for seaming light and medium weight flat, warp, and ribbed knit fabrics of cotton, silk, or similar weight synthetics. The sewing combination has been designed for general purpose seaming of "T" shirts, polo shirts, panties, infant and children's knit wear, and similar garments. Seam specification, 504-SSa-1; standard seam widths, 3/32 and 1/8 inch; stitch range, 8-30 per inch; cam adjusted main and differential feeds. Maximum recommended speed 7000 R. P. M.

39500 FP Medium to heavy duty machine for seaming medium to heavy weight flat, warp, and ribbed knit fabrics made from cotton and wool, used on snow suits, sweat shirts, underwear and similar garments. Seam specification, 504-SSa-1; standard seam width, 1/8 inch; stitch range, 8-20 per inch; cam adjusted main and differential feeds. Maximum recommended speed 6500 R. P. M.

39500 FY Medium to heavy duty machine for seaming medium and heavy loosely knit outerwear made from cotton, wool and synthetic yarns. Wide cutting knives. Seam Specification, 504-SSa-1; standard seam width, 1/8 inch; stitch range, 8-20 per inch; cam adjusted main and differential feeds. Maximum recommended speed 6500 R. P. M.

## STYLES OF MACHINES (Continued)

- 39500 GA Medium to heavy duty machine for seaming medium and heavy knit outerwear made from cotton, wool and synthetic yarns, with provision for inserting a reinforcing tape used on shoulder seams of sweaters and similar garments. Wide cutting knives. Seam Specification, 504-SSa-1; standard seam width, 5/32 inch; stitch range, 8-20 per inch; cam adjusted main and differential feeds. Maximum recommended speed 6500 R. P. M.
- 39500 GF Same as 39500 FP, except fitted with 39500 FB sewing parts. For seaming all types and weights of flat, warp and ribbed knit cotton, wool, rayon and silk fabrics. Seam Specification, 504-SSa-1; standard seam widths, 3/32, 1/8 and 5/32 inch; stitch range, 8-20 per inch; cam adjusted main and differential feeds. Maximum recommended speed 6500 R. P. M.
- 39500 GS Light to medium duty machine for producing high quality, turned down edge seams on pajamas, negligees, peignoirs, blouses and similar sheer items requiring reinforced seams. Seam Specification, 504-EFe-1 inverted; standard seam width 3/32 inch; stitch range, 8 to 30 per inch; cam adjusted main and differential feeds. Maximum recommended speed 7000 R. P. M.
- 39500 JE Light to medium duty machine with reverse differential feed for general purpose of seaming and attaching collarettes to "T" shirts. Prepared to accept Jesse Heap folder No. U-100. Seam Specification, 504-SSa-1; standard seam width 1/8 inch; stitch range, 8-30 per inch; cam adjusted main and differential feeds. Maximum recommended speed 7000 R. P. M.
- 39500 JF Medium to heavy duty machine for seaming bulky knit sweaters; can be used for attaching a reinforcing tape used on shoulder seams of sweaters and similar garments, tape automatically guided by slot in presser foot. Straight knife parts. Seam Specification, 504-SSa-1; standard seam width, 1/8 inch; stitch range, 8-20 per inch; cam adjusted main and differential feeds. Maximum recommended speed 6500 R. P. M.
- 39500 JG Light to medium duty machine for upturned hem on cotton wash cloths and other light to medium weight material. Seam Specification, 505-EFa-1; standard seam width 1/8 inch; stitch range, 8-15 per inch; cam adjusted main and differential feed. Maximum recommended speed 7000 R. P. M.

### . OILING

**CAUTION!** Oil was drained from machine when shipped, so reservoir must be filled before beginning to operate. Oil capacity of Class 39500 is six ounces. A straight mineral oil of a Saybolt viscosity of 90 to 125 seconds at 100° Fahrenheit should be used.

Machine is filled with oil at spring cap in top cover. Oil level is checked at sight gauge on front of machine. Red bulb on oil level indicator should show between gauge lines when machine is stationary.

Machine is automatically lubricated. No oiling is necessary, other than keeping main reservoir filled. Check oil daily before the morning start; add oil as required.

The oil drain plug screw is located at back of machine near bottom edge of base. It is a magnetic screw designed to accumulate possible foreign materials which may have entered the crank case. It should be removed and cleaned periodically.

## NEEDLES

Each Union Special needle has both 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 in thousandths of an inch, 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.

Class 39500 machines use a curved blade needle. The standard recommended needle for Styles 39500 FA, FB, FP, FY, GA, GF, JE, JF, and JG is Type 154 GAS, while the standard needle for Style 39500 GS is Type 154 GBS. Below are the type numbers, description and sizes available of the recommended needles.

<u>Type No.</u>	<u>Description and Sizes</u>
154 GAS	Round shank, round point, curved blade, standard length, single groove, struck groove, spotted, chromium plated and is available in sizes 022, 025, 027, 029, 032, 036, 040, 044, 049, 054, 060.
154 GBS	Round shank, round point, curved blade, standard length, double groove, struck groove, spotted, chromium plated and is available in sizes 025, 027, 029, 032.

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 154 GAS, Size 027".

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.

Success in the operation of Union Special machines can be secured only by use of needles packaged under our brand name, *Union Special* which is backed by a reputation for producing highest quality needles in materials and workmanship for more than three-quarters of a century.

## CHANGING NEEDLES

Release pressure on presser foot by turning presser foot release bushing (AG, Fig. 1 or 1A) and swing presser arm (U) out of position. Turn handwheel in operating direction until needle is at its lowest point of travel. Using hexagonal socket wrench No. 21388 AU, furnished with machine, loosen needle clamp nut about 1/4 turn. Again turn handwheel until needle is at high position; withdraw needle.

To replace needle, leave needle holder at high position and, with the flat to the left, insert needle in holder until it rests against stop pin. Keeping needle in this position, turn handwheel until holder is again at its low point of travel; then tighten nut. Return presser arm (U) to position; re-lock presser foot release bushing (AG).

## THREAD STAND

After thread comes from cones on cone support (A, Fig. 1 or 1A), it is brought up through back hole of thread eyelet (B), then down through the front hole of thread eyelet. Next it is threaded through the upper holes of tension thread guide (C) from front to back and then through the lower holes from back to front. It should be noted that the lower looper thread is threaded through the tension thread guide (C), first through the upper hole back to front, second through the middle hole front to back and third through the lower hole back to front. All threads then continue between the tension discs (J), through tension post slot (K) in tension post (G) and on through front thread guide (M).

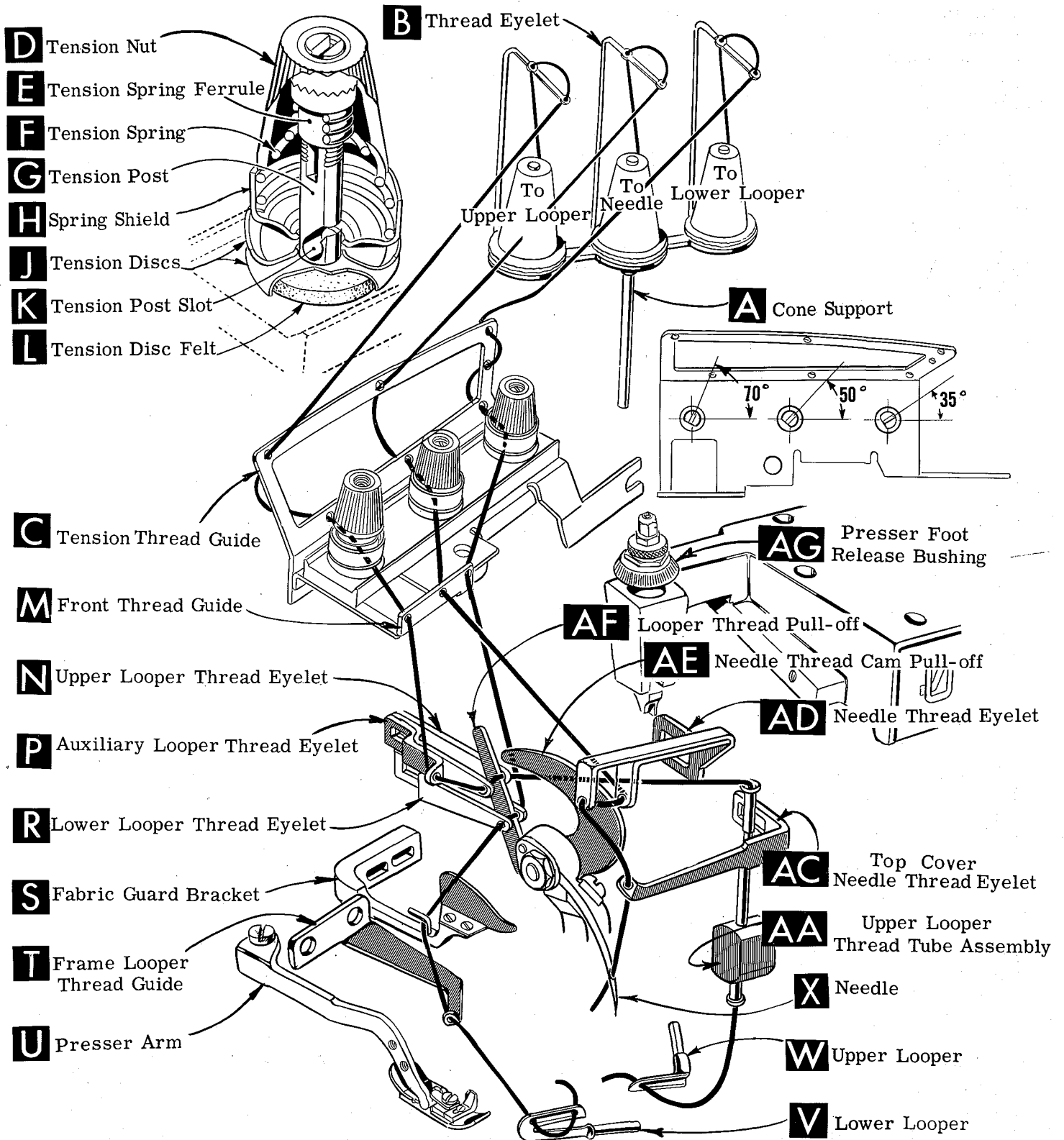


Fig. 1

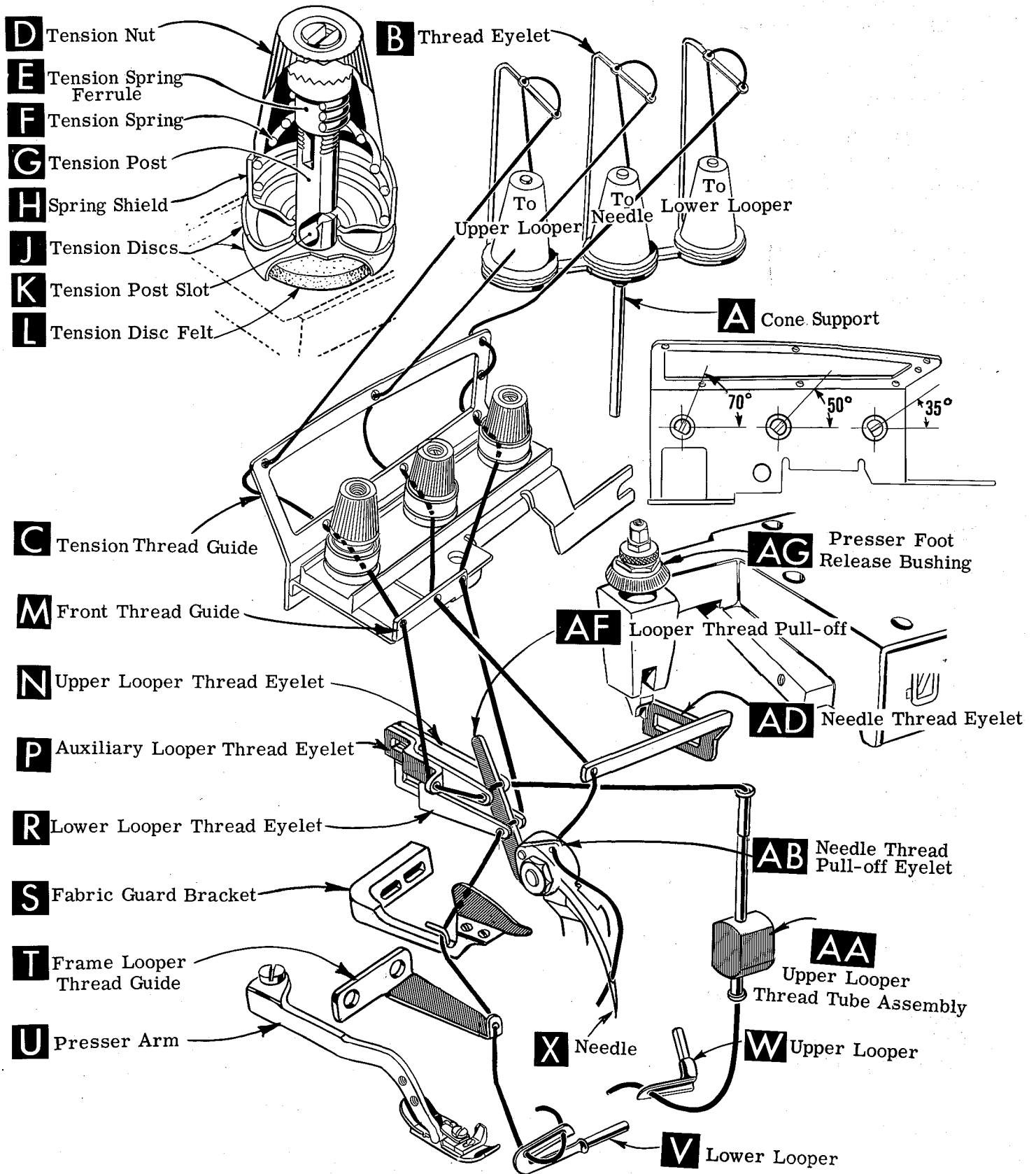


Fig. 1A

## THREADING

Only parts involved in threading are shown in threading diagrams (Fig. 1 and 1A). Parts are placed in their relative positions for clarity.

It will simplify threading this machine to follow recommended sequence of threading lower looper first, upper looper second, and needle third.

The threading of the upper and lower loopers are the same for both Fig. 1 and Fig. 1A, the only difference will be in threading the needle, which will be explained under paragraph "To Thread The Needle".

Before beginning to thread, swing cloth plate open, turn handwheel in operating direction until needle (X) is at high position, release pressure on presser foot by turning presser foot release bushing (AG) and swing presser arm (U) out of position.

Be sure threads, as they come from the tension thread guide (C), are between tension discs (J) and in diagonal slots (K) in tension posts (G).

### TO THREAD LOWER LOOPER

Thread lower looper thread through right eyelet of front thread guide (M). Then double end of thread and lead it through both eyes of lower looper thread eyelet (R, Fig. 1 or 1A) from right to left. Note: thread must pass in front of looper thread pull-off (AF). Lead thread behind fabric guard (S) and through eyelet hole of frame looper thread guide (T). Turn handwheel in operating direction until heel of lower looper (V) is all the way to the left; then thread through both eyes from left to right. Left eye of lower looper can be threaded easily if tweezers are in left hand.

### TO THREAD UPPER LOOPER

Thread upper looper thread through left eyelet of front thread guide (M). Then turn handwheel until point of upper looper (W) is all the way left. Lead thread through auxiliary looper thread eyelet (P) from back to front, then through both eyes of upper looper thread eyelet (N) from left to right. Note: thread must pass in front of looper thread pull-off (AF). After pulling up upper looper thread tube assembly (AA), lead thread under neck of top cover casting and down through thread tube assembly (AA). Pull thread out bottom of tube; push tube down, then insert thread through upper looper eye from front to back.

**CAUTION!** Be sure upper looper thread is under lower looper thread when passing from tube assembly to upper looper eye.

### TO THREAD THE NEEDLE (504 STITCH)

Thread needle thread through middle eyelet of front thread guide (M). Then turn handwheel in operating direction until needle (X, Fig. 1) is at its highest position. Insert needle thread from right to left, through both eyes of needle thread eyelet (AD), under neck of top cover casting; then down through hole in top cover needle thread eyelet (AC). Thread needle from front.

### TO THREAD THE NEEDLE (505 STITCH)

Thread needle thread through middle eyelet of front thread guide (M). Then turn handwheel in operating direction until needle (X, Fig. 1A) is at its highest position. Insert needle thread from back to front of needle thread eyelet (AD), under neck of top cover casting; then through needle thread pull-off eyelet (AB) from right to left. Thread needle from front.



## THREAD TENSION

The amount of tension on needle and looper threads is regulated by the tension nuts (D, Fig. 1 and 1A). Tension on threads should be only enough to secure proper stitch formation.

## PRESSER FOOT PRESSURE

Sufficient presser foot pressure to feed work uniformly should be maintained. Should it be necessary to increase or decrease amount of pressure on presser foot, loosen lock nut (A, Fig. 2) and turn adjusting screw (B). Adjusting screw has a right hand thread so tightening increases pressure, loosening decreases pressure. When pressure adjusting screw (B) has been properly set, tighten lock nut (A). With presser foot resting on throat plate, position locking nut (C) so that its under surface is approximately 1/32 inch to 1/16 inch from the top surface of adjusting screw (B). Set cap (D) against locking nut (C).

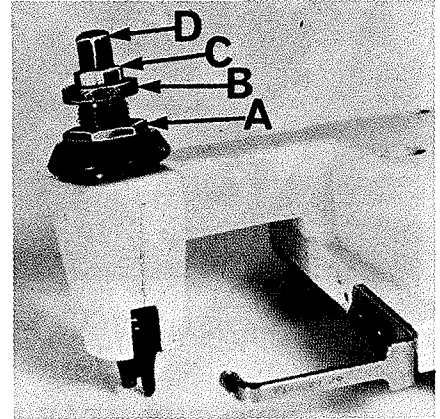


Fig. 2

## FEED ECCENTRICS

Feed eccentrics used in Style 39500 FA machines have been selected to produce approximately 12 stitches per inch. It will be noted that the part number of main feed eccentric is No. 39540 B-10 while that of differential feed eccentric is No. 39540 B-12. Minor numbers of the part symbol indicate approximately the number of stitches obtainable when using that eccentric. Unless otherwise specified, machine will be shipped with above combination of eccentrics. Refer to exploded views for eccentrics used on other styles of machines.

Generally speaking, differential (right hand) feed eccentric determines number of stitches produced; main (left hand) feed eccentric is selected in relation to degree and direction of stretch of material being sewn, or type of operation.

Following stitch number feed eccentrics are available under No. 39540 B-4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 40. Only two eccentrics are supplied with each machine. Additional eccentrics may be ordered separately. To order an eccentric, use No. 39540 B with a minor number suffixed to indicate number of stitches desired. Example: "39540 B-12".

## ASSEMBLING AND ADJUSTING SEWING PARTS

Before assembling and adjusting sewing parts, remove cloth plate, fabric guard, chip guard, upper knife assembly, lower knife holder assembly, then follow this suggested sequence:

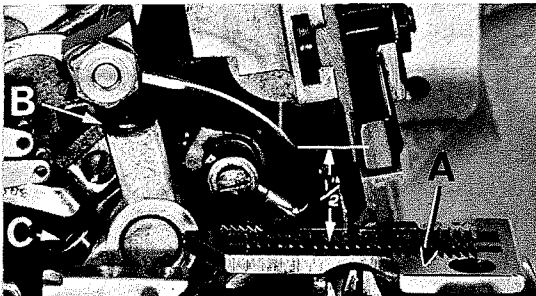


Fig. 3

## SETTING THE NEEDLE

With throat plate assembled in position, needle should center in the front end of needle slot. When needle is at high position, needle point should be set 1/2 inch above throat plate (A, Fig. 3) for Styles 39500 FA, FB, FP, FY, GF, GS, JE and JG; 15/32 inch for Styles 39500 GA and JF. To align needle or set the height above the throat plate, move needle driving arm (B, Fig. 3) by loosening clamp screw (C). Remove throat plate.

## SETTING THE NEEDLE (Continued)

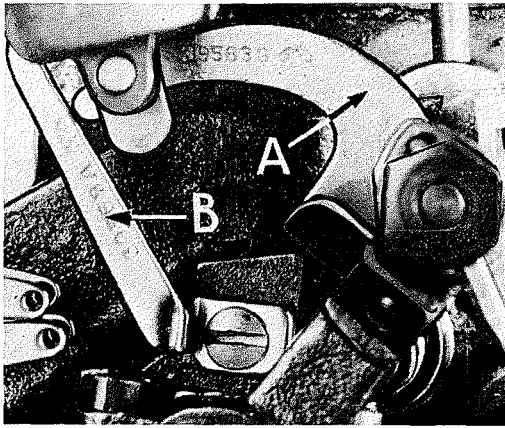


Fig. 4

If needle thread cam pull-off (A, Fig. 4) overlaps looper thread pull-off (B), separate by moving looper thread pull-off back. When re-tightening looper pull-off screw, be sure to take up end play in needle driving arm.

At this point, insert lower looper (A, Fig. 5) into bar (B). With lower looper at left end of its stroke, set looper point  $\frac{1}{8}$  inch from center of needle (Fig. 5), using looper gauge No. 21225- $\frac{1}{8}$ . Do not have lower looper deflecting needle. Tighten nut (C).

Now assemble differential (front) feed dog.

## SETTING THE REAR NEEDLE GUARD

Set rear needle guard (A, Fig. 6) as high as possible, without interfering with either lower looper or movement of lower knife holder, but still in position to deflect needle forward .002-.004 inch. Screw (B) is used to set rear needle guard. Make sure there is no interference between rear needle guard and lower looper.

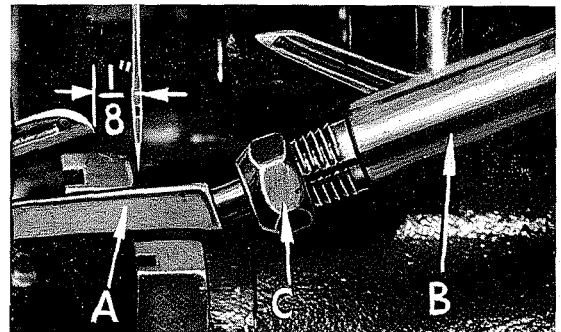


Fig. 5

## SETTING THE LOWER LOOPER

Now finish lower looper adjustment. As lower looper moves to the right, its point should be set into the needle scarf (A, Fig. 7) until the needle springs forward from rear guard surface another .002-.004 inch.

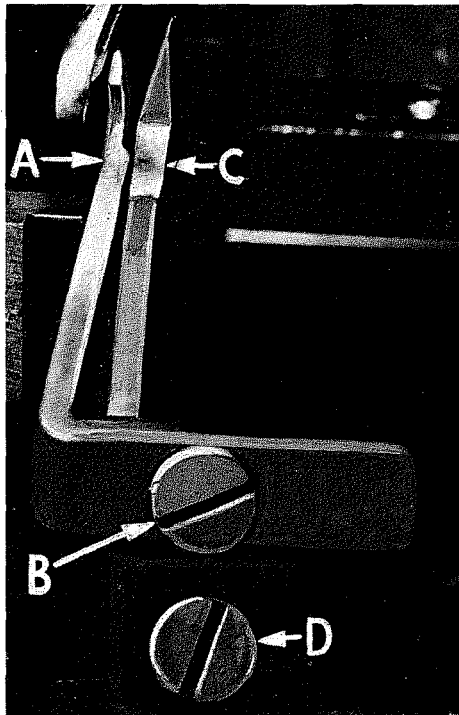


Fig. 6

## SETTING THE FRONT NEEDLE GUARD

Assemble front needle guard (C, Fig. 6). When lower looper is springing needle off backguard, set front needle guard as close as possible to needle without touching. Screw (D) is used to adjust and set front needle guard. After this setting make sure there is no interference between needle guards and differential feed dog.

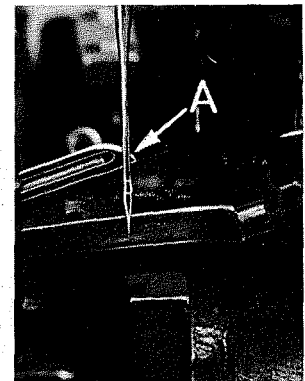


Fig. 7

## SETTING THE UPPER LOOPER

Insert upper looper (A, Fig. 8) in its holder. Screw (B, Fig. 8) holds upper looper in its holder, and permits it to be pushed in or out or turned around its shank. Insert upper looper holder into upper looper shaft, if it is not already in place. Screw (C, Fig. 8) in clamp holds the upper looper holder in the shaft. Locate upper looper in its holder so that the shank extends  $1/32$  to  $1/16$  inch beyond holder (Fig. 8), for Styles 39500 FA, FB, GS, JE and JG, and  $1/16$  to  $3/32$  inch for Styles 39500 FP, FY, GA, GF and JF.

When the upper looper is at the right end of its stroke, upper looper holder should be set to position upper looper shank slightly back of vertical on all Styles except 39500 JF (Fig. 8).

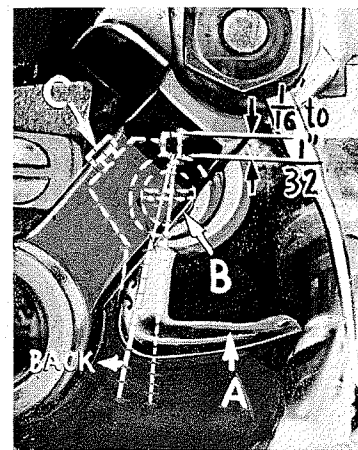


Fig. 8

**NOTE:** On Style 39500 JF, upper looper holder should be set to position the upper looper shank about vertically. Be sure, on all styles, there is a clearance between heel of looper and casting. By adjusting looper holder in or out of upper looper shaft and by turning the looper around its shank, set upper looper point to cross lower looper to the left of the lower looper eye with 0.002 to 0.004 clearance (Fig. 9).

As the upper looper moves toward the top of its stroke, the heel of the upper looper should pass behind the lower looper head with  $1/64$  to  $1/32$  inch clearance.



Fig. 9

resetting is necessary, do it by moving the upper looper holder (A, Fig. 10). Figure 10 represents the dimensional setting for Styles 39500 FA, FB, GS, JE and JG.

**NOTE:** For Style 39500 FP, the settings are  $9/64$  and  $35/64$  inch. For Styles 39500 FY, GA, GF, the settings are  $9/64$  and  $1/2$  inch. For Style 39500 JF, the settings are  $9/64$  and  $15/32$  inch. For example, dimension  $31/64$  inch is increased by turning upper looper holder counterclockwise, looking from left end of machine;

dimension  $5/32$  inch is increased by pulling upper looper holder left, out of upper looper shaft. After these changes are made, it may be necessary to turn upper looper around its shank slightly to maintain the condition shown in Fig. 9.

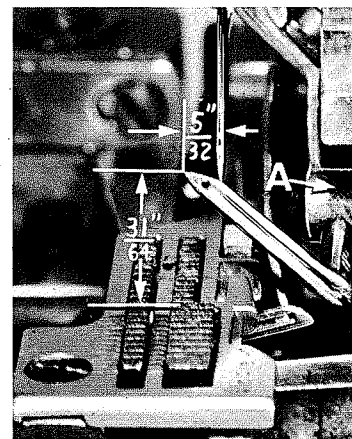


Fig. 10

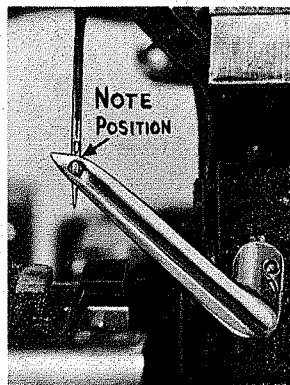


Fig. 11

When the correct setting is obtained, it can be checked quickly as follows: As upper looper is moving to the right, when upper looper eye centers on the needle, bottom of the needle eye should be about level with top surface of upper looper (Fig. 11) for Styles 39500 FA, FB, GS, JE and JG.

## SETTING THE UPPER LOOPER (Continued)

NOTE: For Styles 39500 FP, FY, GA, GF and JF, the eyes of the upper looper and needle should align exactly.

Check setting to avoid interference between upper looper and needle on needle downstroke. If needle rubs the back of upper looper, pull looper out of its holder slightly and rotate looper a short distance counterclockwise, looking from left end of machine. Reset to maintain dimensions of Figs. 9, 10, 11.

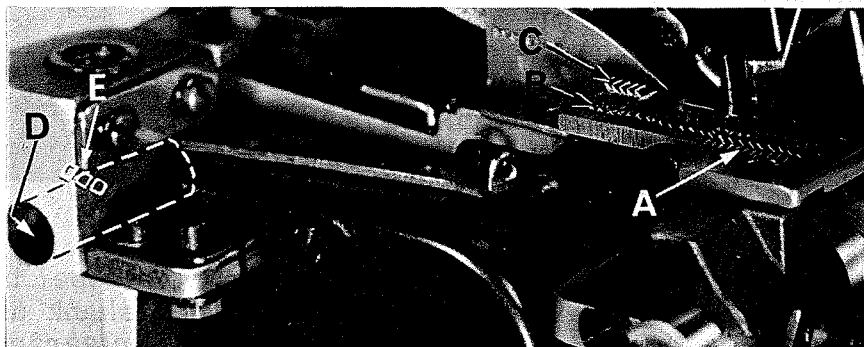


Fig. 12

## SETTING THE FEED DOGS

Now assemble main (back) feed dog and chaining feed dog.

Set all three feed dogs (A, B, C, Fig. 12) so the top surfaces of teeth all lay in the same plane. This can be checked by sighting across teeth with a straight edge. Now assemble throat plate. Feed dogs should now be leveled with throat plate surface by rotating feed tilting adjusting pin (D). This pin raises or lowers the back end of both feed bars at the same time. The feed dogs should be set level at the time teeth first appear above the throat plate. Screw (E) locks the feed tilting adjusting pin (D) in place.

Now set the main feed dog on all Styles; the differential feed dog on all Styles except 39500 JG, so that the teeth rise approximately  $3/64$  inch above the throat plate at high point of travel. The same setting applies to the chaining feed dog on Style 39500 FA only. On Style 39500 JG, set the differential feed dog to rise approximately  $1/32$  inch.

NOTE: On all Styles except 39500 FA, set the chaining feed dog (C) level with top of throat plate when feed is at the top of its travel.

## SETTING THE LOWER KNIFE

Replace lower knife holder assembly. Lower knife (A, Fig. 13) should be set with cutting edge flush with throat plate surface. Adjustments are made with hexagonal head screw which holds lower knife. Lower knife is spring pressed against upper knife, so no lateral adjustment is necessary when width of trim is changed.

Lower knife may be secured in any position by tightening screw (B) and locking nut (C) against support bracket. Because screw (B) also serves as latch pin for the cloth plate latch spring, it should always be locked with nut (C) even when screw is not tightened against lower knife holder.

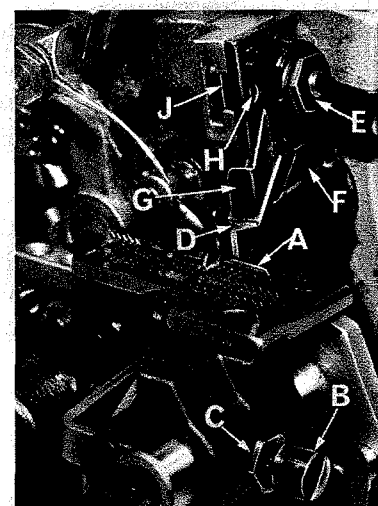


Fig. 13

## SETTING THE UPPER KNIFE

Replace upper knife assembly. Clamp upper knife (D, Fig. 13) in position, setting nut (E) to hold clamp (F) in its most clockwise position against upper knife. At bottom of its stroke, front cutting edge of upper knife should extend not less than 1/64 inch below cutting edge of lower knife. The chain guard (G) should be set down against the upper knife and slightly back from the cutting edge. See Page 19 for Setting Knife on 39500 JF.

After upper knife has been set for proper width of trim, screw (H) should be tightened to lock upper knife holding block (J) in place. This will simplify resetting when upper knife is replaced.

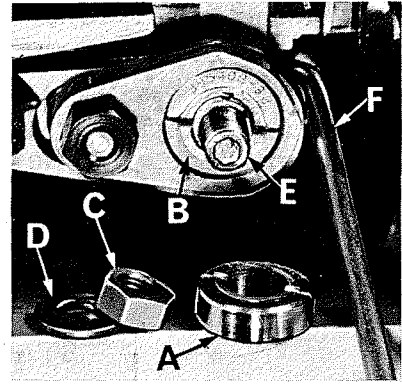


Fig. 14

## SETTING THE STITCH LENGTH

Length of stitch is determined by the combination of feed eccentrics used. Outer (left) eccentric (A, Fig. 14) actuates main (rear) feed dog; while the inner (right) eccentric (B) actuates the differential (front) feed dog.

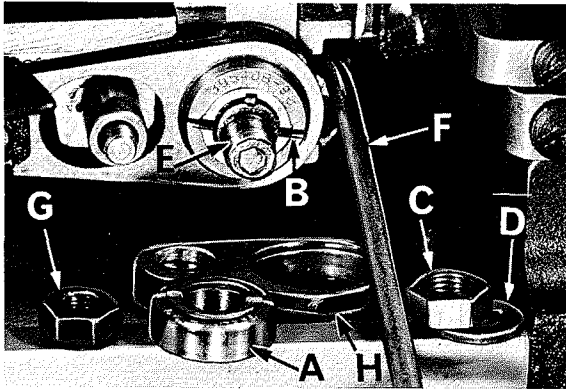


Fig. 15

In assembling feed eccentrics, be sure hubs are facing each other. Be careful not to damage shaft or key. Tighten nut (C) securely.

To change feed eccentrics, remove nut (C) and washer (D) from end of shaft (E). Turn hand-wheel in operating direction until key slot in eccentric is toward front. Using hooked eccentric extractor (F), supplied with machine, reach behind eccentrics as shown and withdraw eccentrics. It may be necessary to move hand-wheel back and forth slightly during extraction.

If eccentrics are unusually tight fitting, in addition to removing nut (C) and washer (D) (Fig. 15) from shaft (E), it may be helpful to remove nut (G) and feed driving connection (H). Then continue as originally suggested.

## SETTING THE PRESSER FOOT

Assemble the presser foot to presser arm. With needle in high position, swing presser arm into sewing position and set the presser foot to align needle holes (front and back) and flat on throat plate. The front edge of needle hole in presser foot must be aligned with front edge of needle hole in throat plate. It is also important that the bottom of the presser foot be flat on the throat plate. If necessary, presser foot can be realigned with throat plate slots by shifting the foot lifter lever shaft (H, Fig. 16). To move the shaft, loosen collar screws (B, Fig. 16) and clamp screw (G) and then shift the foot lifter lever shaft to the left or right as required. Retighten collar screws and clamp screw.

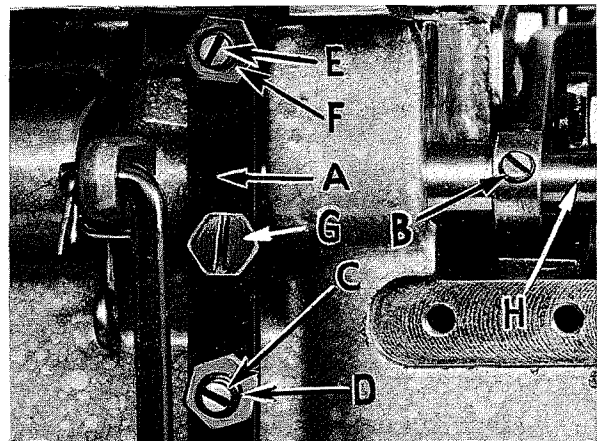


Fig. 16

## SETTING THE PRESSER FOOT (Continued)

The foot lifter lever arm (A, Fig. 16) and the collar (B) secure the shaft. Be sure the presser arm does not bind and rise when presser foot release bushing is unlocked.

Adjust lifter lever stop screw (C) so that presser foot can be raised no higher than upper looper will permit: then lock the nut (D). There should be from 1/16 to 1/8 inch free motion of foot lifter lever before the presser foot begins to rise. This adjustment should be made with screw (E) and locked with nut (F). Re-assemble the chip guard, fabric guard and cloth plate. To assemble chip guard, turn handwheel until upper knife assembly reaches its highest position.

### STARTING TO OPERATE (504 STITCH)

Be sure machine is threaded according to threading diagram (Fig. 1). With thread tensions light, set looper thread eyelets (N and R) about horizontal and in the middle of their front to back locations. Operate machine slowly, without presser foot in place, to make sure that chain forms and moves off the tongue freely. Swing presser foot into position, insert material, and sew slowly.

### NEEDLE THREAD CONTROL (504 STITCH)

While sewing on material, check needle thread control as follows: Usually all needle thread is drawn on needle down stroke. At top of needle stroke, thread should be just tight enough to feed chain off stitch tongue. Stitch tends to pull down slightly if excessive thread is pulled on the up stroke. With needle at bottom of stroke, position needle thread eyelet (AD, Fig. 1) so that needle thread cam pull-off (AE) just contacts needle thread.

On all Styles 39500 except 39500 JG, it is desirable to adjust the needle thread pull-off eyelet well-forward (toward the operator) to delay, slightly, the tightening of the needle thread.

### LOWER LOOPER THREAD CONTROL (504 STITCH)

With material under presser foot, set lower looper thread eyelet (R, Fig. 1) back far enough so thread is a little slack when looper thread pull-off (AF) reaches its most rearward position. Looper thread pull-off (AF) is set about 1/8 inch distance behind needle thread cam pull-off (AE). Frame looper thread guide (T) should be set with its eyelet approximately 1/8 inch to the right of lower looper (V) heel eyelet at the time lower looper is at extreme left end of its travel.

While sewing on material, check drawing off of looper thread as follows: A portion of lower looper thread should be drawn through the tension before lower looper thread comes off upper looper. To increase amount of thread drawn through the tension while lower looper thread is on upper looper, move lower looper thread eyelet (R) down, keeping the same amount of pull-off action.

### UPPER LOOPER THREAD CONTROL (504 STITCH)

Before proceeding to adjust upper looper thread eyelet (N, Fig. 1) balance all three tensions to give a normal appearing stitch. Moderate change in these tensions will not markedly effect the purl.

During needle down stroke, forward stroke of looper thread pull-off (AF) will draw upper looper thread through the tension. When normal amount of looper thread is drawn, upper looper thread will have almost all slack taken up as looper thread pull-off reaches its most rearward position.

## POSITIONING THE PURL (504 STITCH)

To move the purl more under the edge, both looper thread eyelets (N and R, Fig. 1) should be raised keeping the same amount of pull-off. Usually it is better to have slightly more pull-off on upper thread than on lower thread.

If it becomes necessary to move looper thread pull-off (AF), be sure to take up all end play in needle drive shaft before tightening. If upper looper is located so that it is higher over throat plate than recommended in Fig. 10, the purl will tend to form near top edge. If upper looper is too low, the purl will form nearer bottom edge.

## THREAD TENSIONS (504 STITCH)

The needle thread tension required is a function of needle thread and material being sewn. In general, lower looper thread tension should be set as high as possible without causing needle thread to be pulled down. Upper looper thread tension should be increased as long as the elasticity of the chain increases, or until the purl is pulled too far over the top.

## STARTING TO OPERATE STYLE 39500 JG (505 STITCH)

Be sure machine is threaded according to threading diagram (Fig. 1A).

With thread tensions light, set upper and lower looper thread eyelets (N and R) about horizontal and in the middle of their front to back locations.

Operate machine slowly, without presser foot in place, to make sure that chain forms and moves off the tongue freely.

Swing presser foot into position, insert materials, and sew slowly.

## NEEDLE THREAD CONTROL (505 STITCH)

While sewing on material, check needle thread control as follows: About 60% of needle thread required for the stitch should be drawn on needle downstroke.

To increase thread drawn on downstroke, position needle thread eyelet (AD, Fig. 1A) farther to the rear.

## LOWER LOOPER THREAD CONTROL (505 STITCH)

Set lower looper thread eyelet (R, Fig. 1A) about horizontal and all the way forward in its slot.

Frame looper thread guide (T) should be set with its eyelet approximately 1/8 inch to the right of lower looper (V) heel eyelet, when lower looper is at the left end of its stroke.

## UPPER LOOPER THREAD CONTROL (505 STITCH)

With material under presser foot, set upper looper thread eyelet (N, Fig. 1A) to rest on top of lower looper thread eyelet (R), and back far enough so upper looper thread is a little slack when upper looper reaches the left end of its stroke.

## POSITIONING THE SQUARE EDGE (505 STITCH)

Position of lower looper thread at the edge is located by balancing needle and upper looper thread tensions.

To reduce amount of lower looper thread in the stitch, or close the edge more, increase lower looper thread tension.

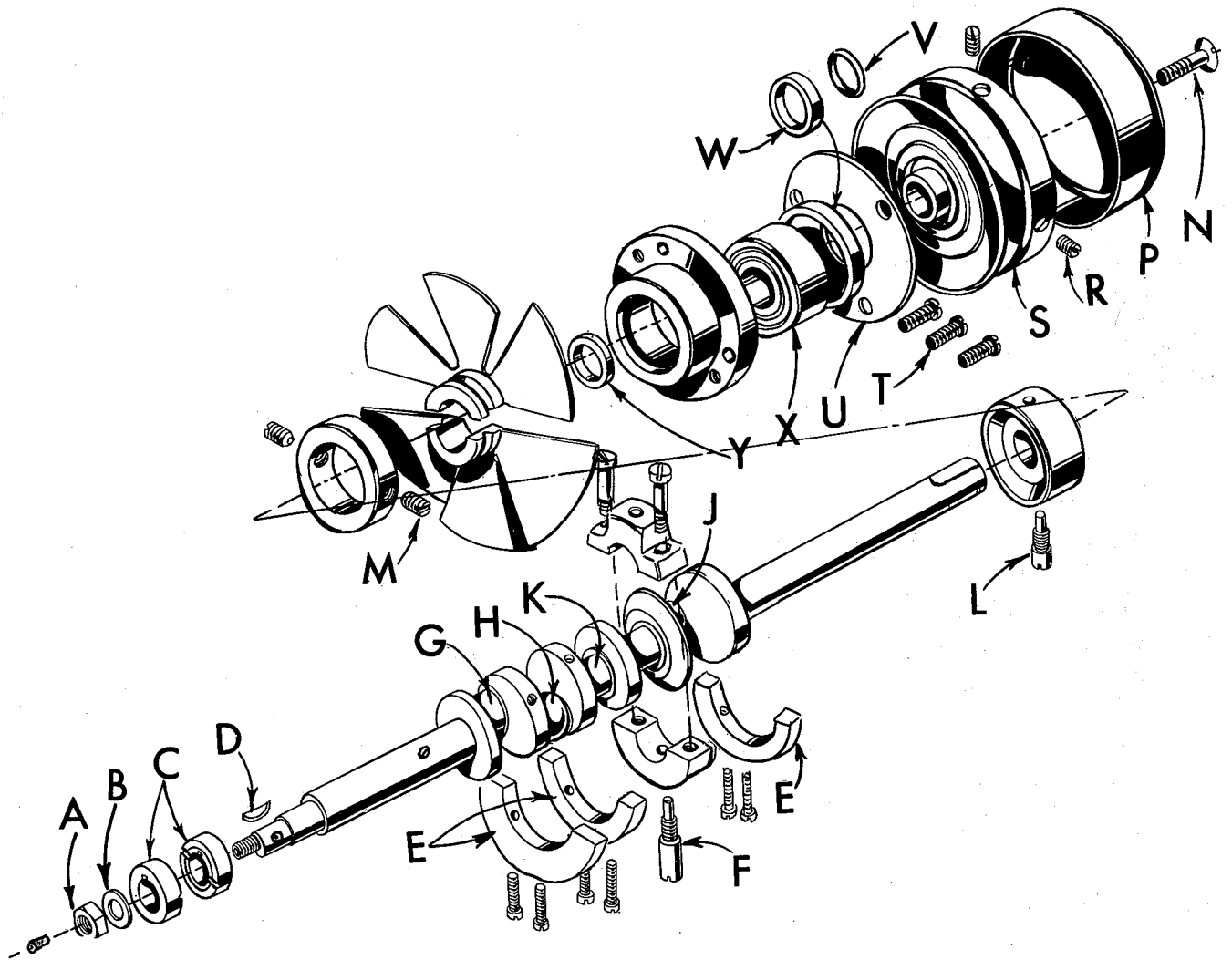


Fig. 17

TO REMOVE CRANKSHAFT

Crankshaft can be withdrawn easier if these steps are followed:

1. Drain oil by removing plug screw located on back of machine near bottom edge of base.
2. Remove top and bottom covers of machine.
3. Remove feed eccentric nut (A, Fig. 17) and washer (B), and, with the aid of the eccentric extractor, slip off the eccentrics (C).
4. Remove key (D).
5. Remove three counterweights (E). Identify these counterweights so that they will be re-assembled in the proper places.
6. Remove screw (F) which holds crankshaft split bearing. This screw is reached through bottom of bed casting.



## TO REMOVE CRANKSHAFT (Continued)

7. Remove caps of bearings on crankshaft at points G, H, and J. When re-assembling bearing caps make sure they are in their original position. Trade marks are stamped on both halves of the caps and both trade marks should be on the same side of the bearings. Also, screws should be re-assembled in the same holes from which they were removed.

8. Loosen clamp nut (A, Fig. 18) which holds upper knife driving arm (B). Access to clamp nut is through top cover. Draw driving arm to the left until upper knife driving lever (C) and connecting rod (D) drop, allowing removal of bearing cap (E). This is at bearing point (K, Fig. 17) on crankshaft. Observe same precautions when re-assembling cap as described in 7 above.

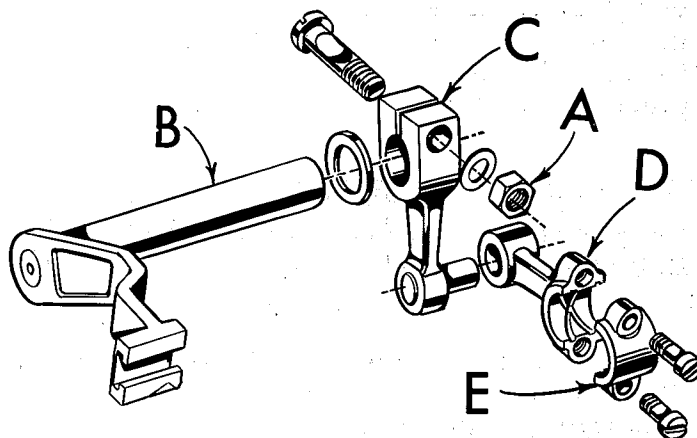


Fig. 18

9. Remove screw (L, Fig. 17) which holds inner right crankshaft bearing. This screw is reached through bottom of bed casting.
10. Loosen two screws (M) in fan collar; remove both halves of cooling fan.
11. Remove screw (N); take off pulley cap (P).
12. Loosen two screws (R); remove pulley (S).
13. Remove three screws (T); take off bearing retaining plate (U); also, spacer collars (V) and (W) may be removed at this time.
14. Crankshaft may now be removed.
15. If necessary to replace ball bearing (X), it should be pressed off shaft on an arbor press. In replacing bearing it must be pressed on carefully until it seats against ground thrust washer (Y).
16. Carefully observing reverse of the foregoing operations should simplify re-assembly of crankshaft. Checking exploded view drawings for location of various parts and constant testing for binds during re-assembly will also prove helpful.
17. Before re-assembling, thoroughly clean and dry top and bottom covers and gaskets. Before re-assembling bottom cover make sure that spring pressed oil wick which lubricates left crankshaft bearing is inserted in hole in casting and that it contacts shaft. The wick stands vertically on its spring against bottom cover. Coat oil drain plug with a sealing compound before re-assembling to prevent oil leakage. No. 1 Crane Lead Seal is recommended.

## 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, description and the number of pieces required in the particular view being shown.

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

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

44	29126 DF	Lower Looper Bar Driving Lever and Connecting Rod Assembly -----	1
45	22729 E	Screw, for connecting rod -----	2
46	39544 S	Ball Joint Guide Fork -----	1
47	97	Screw, for ball joint guide fork -----	2
48	22729 D	Screw, for connecting rod -----	2
49	666-255	Felt, for connecting rod -----	1
50	39544 U	Lower Looper Bar Driving Lever -----	1

It will be noted in the above example that the connecting rod bearing is not listed. The reason is that replacement of this part individually is not recommended, so complete sub-assembly should be ordered.

Where the parts for all the styles covered in this catalog are not the same, the difference will be shown in the illustrations or mentioned in the descriptions. When a part is used in all machines covered by this catalog no machine style will be mentioned.

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.

## 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 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 trade mark. Each trade mark 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.

### SETTING UPPER KNIFE (FOR STYLE 39500 JF)

Replace upper knife assembly. Clamp upper knife in position, setting Allen screw located on the right side to hold clamp against the upper knife. At bottom of its stroke, front cutting edge of upper knife should extend not less than 1/64 inch below cutting edge of the lower knife.

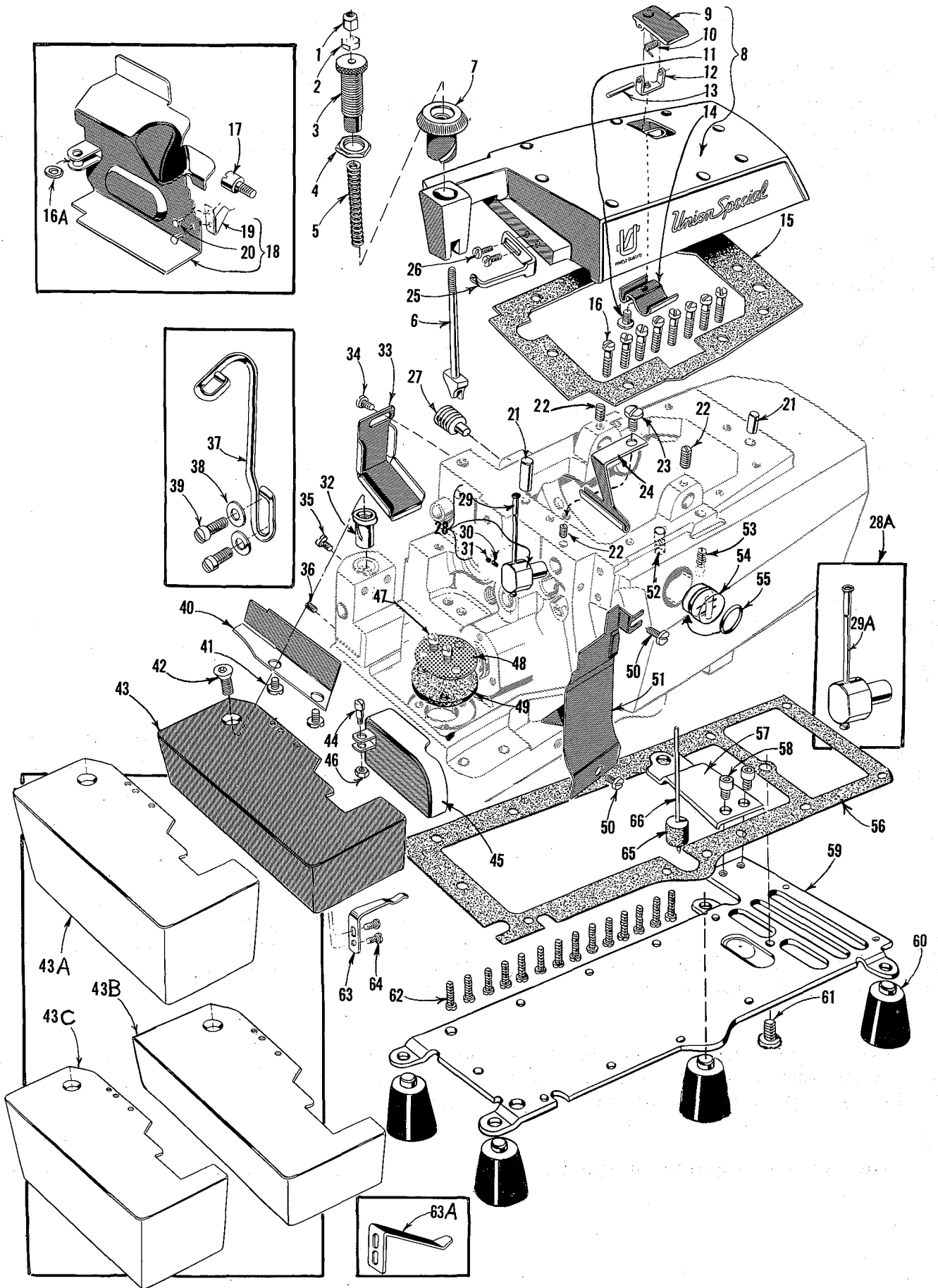
After the upper knife has been set for the proper width of trim, the upper knife holding block should be locked in place using the screw at the front of the holding block.

### TORQUE REQUIREMENTS

Torque (measured in inch-pounds) is a rotating force (in pounds) applied through a 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.

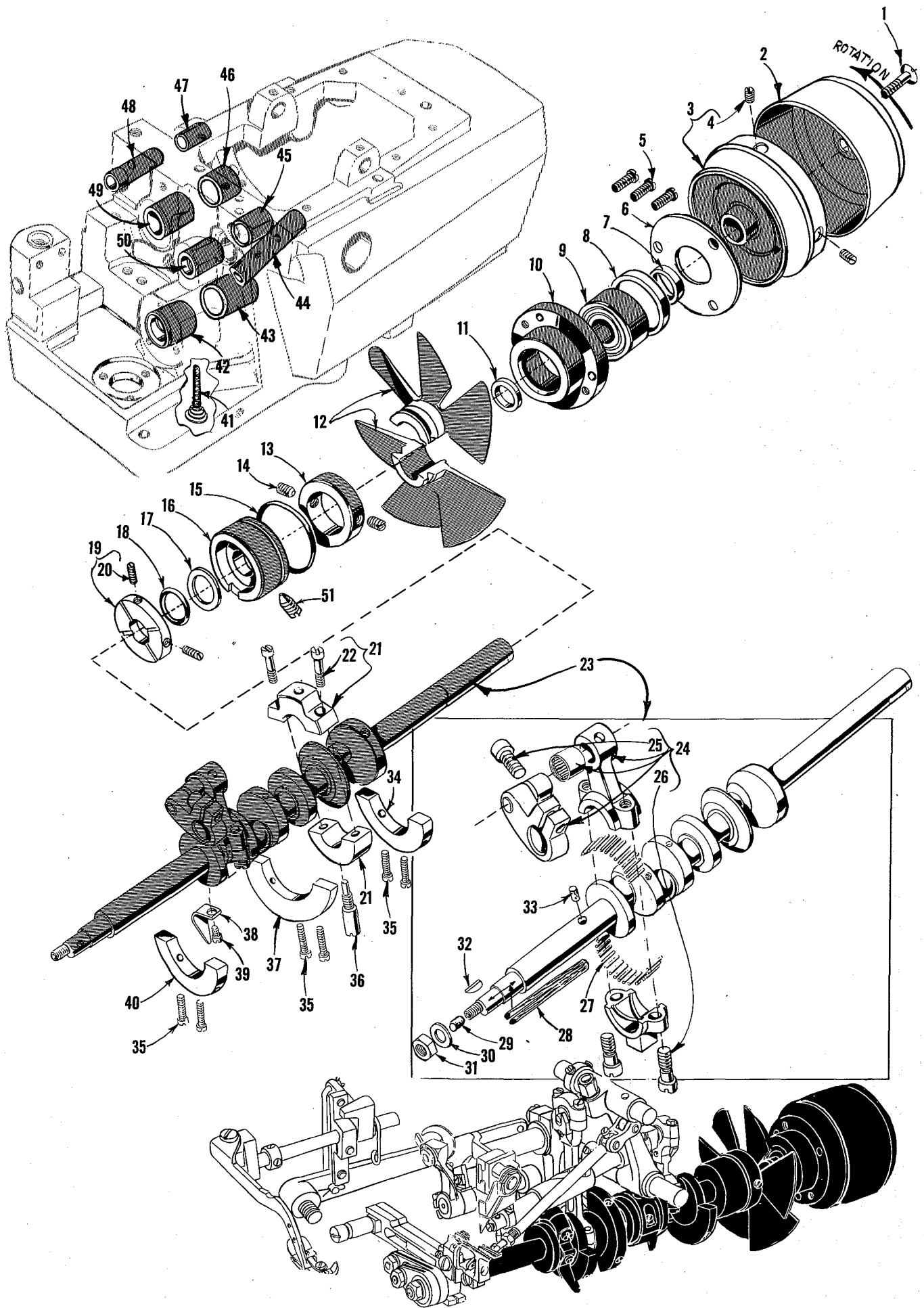
All straps and eccentrics should be tightened to 19-21 inch-pounds, unless otherwise noted. All other nuts, bolts, screws, etc., should be tightened by hand as tightly as possible, unless otherwise noted.

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



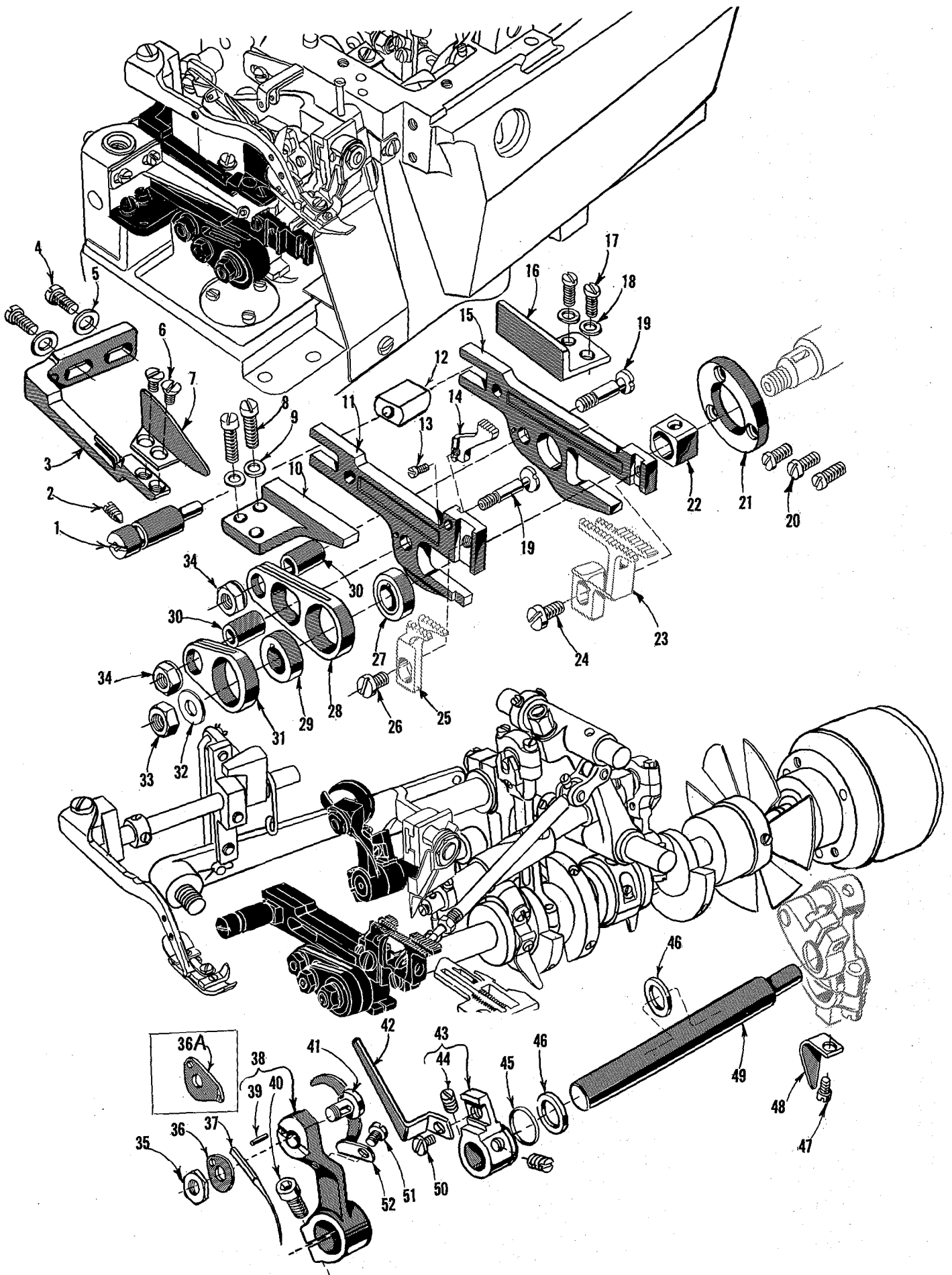
MAIN FRAME, MISCELLANEOUS COVERS AND PLATES

Ref. No.	Part No.	Description	Amt. Req.
1	39557 B	Presser Spring Plunger Cap Nut	1
2	39557 E	Presser Spring Plunger Locking Nut	1
3	39557 C	Presser Spring Plunger Adjusting Screw	1
4	39557 F	Lock Nut, for adjusting screw	1
5	39557	Presser Spring	1
6	39557 A	Presser Spring Plunger	1
7	39556 A	Presser Foot Release Bushing	1
8	39582 AD	Top Cover	1
9	39582 AF	Oil Filler Cup	1
10	39582 V	Spring	1
11	22562 A	Screw, for hinge bracket	1
12	39582 AG	Hinge Bracket	1
13	51-103 Blk.	Hinge Pin	1
14	39582 W	Oil Guard	1
15	39582 AE	Top Cover Gasket	1
16	22541	Screw, for top cover	8
16A	53634 C	Washer, for No. 39582 GG and used with 86 X on Style 39500 JF	1
17	22585 G	Side Cover Latch Stud, for Styles 39500 GA, JF	1
18	39582 GG	Side Cover, for Styles 39500 GA, JF	1
19	39582 H	Spring	1
20	39582 J	Rivet, for spring	2
21	667 D-8	Dowel Pin	2
22	22565	Screw, for upper looper thread tube assembly	1
23	22569 D	Screw, for oil collector plate	1
24	39594 R	Oil Collector Plate	1
25	39563 F	Top Cover Needle Thread Eyelet, for all Styles except 39500 FY, GA, JF, JG	1
-	39563 T	Top Cover Needle Thread Eyelet, for Styles 39500 FY, GA, JF	1
26	22569 B	Screw, for top cover needle thread eyelet	2
27	22571 E	Magnetic Oil Drain Plug Screw	1
28	29477 GW	Upper Looper Thread Tube Assembly, for all Styles except 39500 FY	1
28A	29477 HJ	Upper Looper Thread Tube Assembly, for Style 39500 FY	1
29	39568 G	Thread Tube, for No. 29477 GW	1
29A	39568 P	Thread Tube, for No. 29477 HJ	1
30	39568 J	Thread Tube Tension Spring	1
31	22743	Screw, for thread tube tension spring	1
32	39501 K	Cloth Plate Stud	1
33	39534 R	Feed Bar Oil Shield	1
34	90	Screw, for feed bar oil shield	1
35	22569	Screw, for cloth plate stud	1
36	22565 F	Screw, for feed adjusting pin	1
37	39599	Tape Guide, for Styles 39500 GA, JF	1
38	69 H	Washer, for tape guide	2
39	22569	Screw, for tape guide	2
40	39578 F	Cloth Plate Fabric Guard, for all Styles except 39500 JF	1
41	138	Screw, for cloth plate fabric guard	2
42	22657 D-12	Screw, for cloth plate	1
43	39501 D	Cloth Plate, for semi or fully submerged installation on all Styles except 39500 JF	1
43A	39501 E	Cloth Plate, for non-submerged installation on all Styles except 39500 JF	1
43B	39501 DB	Cloth Plate, for semi or fully-submerged installation on Style 39500 JF	1
43C	39501 EB	Cloth Plate, for non-submerged installation on Style 39500 JF	1
44	86 X	Screw, for feed mechanism cover	1
45	39582 D	Feed Mechanism Cover, for all Styles except 39500 GA, JF	1
46	41071 G	Nut, for feed mechanism cover	1
47	22569 B	Screw, for oil filter screen and strainer	2
48	39594 G	Oil Filter Screen	1
49	39594 H	Oil Strainer	1
50	22569 D	Screw, for chip guard	2
51	39578 T	Chip Guard for all Styles except 39500 GA, JG	1
-	39578 TA	Chip Guard, for Style 39500 GA	1
-	39578 U	Chip Guard, for Style 39500 JG	1
52	22569 K	Screw, for oil sight gauge	1
53	22894 AD	Screw, for lower looper bar driving lever shaft	1
54	39593 H	Oil Sight Gauge	1
55	660-243	Oil Gauge Seal Ring	1
56	39582 Y	Bottom Cover Gasket	1
57	39582 F	Bottom Cover Extension	1
58	22653 D-4	Screw, for bottom cover extension	2
59	39582 X	Bottom Cover	1
60	39595	Isolators	4
61	22586 R	Screw, for bottom cover	1
62	22569	Screw, for bottom cover	14
63	39532 A	Cloth Plate Latch Spring, for all Styles except 39500 JF	1
63A	39532 E	Cloth Plate Latch Spring, for Style 39500 JF	1
64	90	Screw, for latch spring	2
65	39593 C	Oil Gauge Float	1
66	39593 D	Oil Gauge Indicator	1



CRANKSHAFT MECHANISM AND BUSHINGS

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Amt. Req.</u>
1	22769 B	Screw, for pulley cap -----	1
2	39521 D	Pulley Cap -----	1
3	39521 C	Pulley -----	1
4	95	Screw, for pulley -----	2
5	22569 B	Screw, for crankshaft ball bearing retaining plate -----	3
6	39590 H	Crankshaft Ball Bearing Retaining Plate -----	1
7	39590 S	Spacer Collar -----	1
8	39590 R	Ball Bearing Stop Collar -----	1
9	660-268	Crankshaft Ball Bearing -----	1
10	39590 G	Crankshaft Ball Bearing Housing -----	1
11	39590 J	Thrust Washer -----	1
12	39591 L	Crank Chamber Cooling Fan -----	1
13	39591 H	Crank Chamber Cooling Fan Collar -----	1
14	22894 D	Screw, for crank chamber cooling fan collar -----	2
15	660-443	"O" Ring, for crankshaft bearing, inner right -----	1
16	39590 L	Crankshaft Bearing, inner right -----	1
17	39573 A	Washer, for crankshaft bearing, inner right -----	1
18	660-202	"O" Ring, for crankshaft bearing, inner right -----	1
19	39590 P	Oil Slinger Collar -----	1
20	77 Q	Screw, for oil slinger collar -----	2
21	39590 D	Crankshaft Split Bearing -----	1
22	97 A	Screw, for crankshaft split bearing -----	2
23	29477 JM	Crankshaft and Needle Driving Arm Crank Assembly, for Styles 39500 FA, FB, GS, JE, JG -----	1
	29477 KE	Crankshaft and Needle Driving Arm Crank Assembly, for Styles 39500 FP, FY, GA, GF, JF -----	1
24	29477 JN	Needle Driving Arm Crank and Connecting Rod Assembly -----	1
25	22596 G	Screw, for needle driving arm crank -----	1
26	22587 M	Screw, for needle driving arm connecting rod -----	2
27	39516-625	Needle Bearing, .0625 inch diameter -----	28
	39516-626	Needle Bearing, .0626 inch diameter -----	28
	39516-627	Needle Bearing, .0627 inch diameter -----	28
28	WO-3	Wool Yarn -----	as required
29	CO67 E	Cork Plug -----	1
30	40-46	Washer -----	1
31	258	Nut -----	1
32	39541 A	Feed Driving Eccentric Key -----	1
33	51-228 Blk.	Vent Plug -----	1
34	39591 B	Crankshaft Counterweight, right -----	1
35	22747 B	Screw, for crankshaft counterweight -----	6
36	39590 N	Stud, for crankshaft split bearing -----	1
37	39591 A	Crankshaft Counterweight, middle -----	1
38	39594 N	Oil Splasher -----	1
39	87 U	Screw, for oil splasher -----	1
40	39591 K	Crankshaft Counterweight, left -----	1
41	666-94	Oil Wick and Spring -----	1
42	39590	Crankshaft Bushing, left -----	1
43	39590 T	Crankshaft Bushing, inner left -----	1
44	39544 L	Lower Looper Bar Bushing -----	1
45	39552 P	Needle Driving Arm Crank Bushing, right -----	1
46	39573 AA	Upper Knife Driving Arm Bushing, right -----	1
47	39555 N	Foot Lifter Shaft Bushing, right -----	1
48	39555 E	Foot Lifter Shaft Bushing, left -----	1
49	39573 K	Upper Knife Driving Arm Bushing, left -----	1
50	39552 U	Needle Driving Arm Crank Bushing, left -----	1
51	22565 F	Screw, for inner right crankshaft bearing -----	1

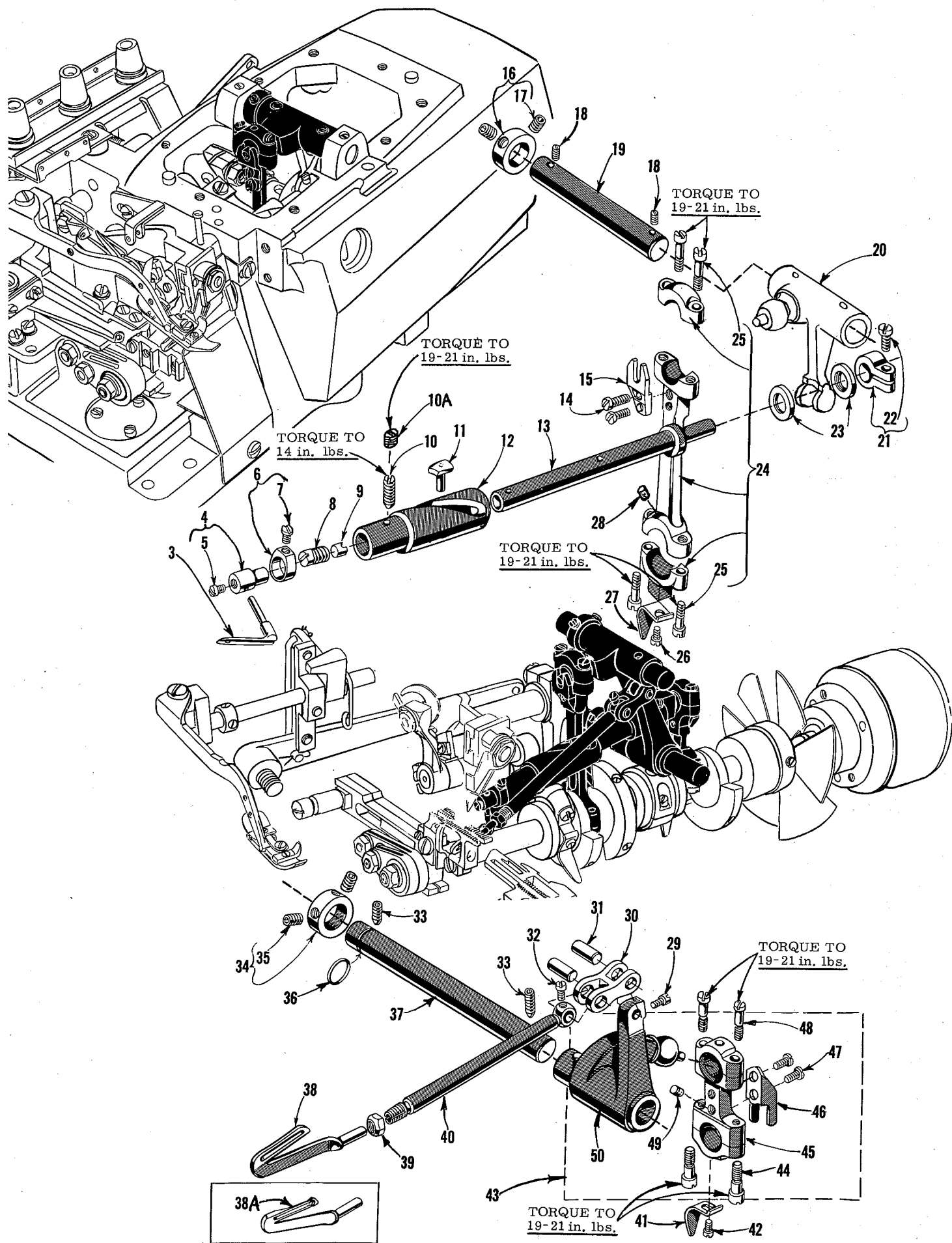




NEEDLE DRIVE AND FEED MECHANISM

Ref. No.	Part No.	Description	Amt. Req.
1	39535 C	Feed Adjusting Pin -----	1
2	22565 F	Screw, for feed adjusting pin -----	1
3	39578 P	Fabric Guard Mounting Bracket-----	1
4	22569 B	Screw, for fabric guard mounting bracket-----	2
5	8372 A	Washer, for mounting bracket screw -----	2
6	87	Screw, for fabric guard-----	2
7	39578 R	Fabric Guard -----	1
8	22569 B	Screw, for main feed bar guide, left -----	2
9	53634 C	Washer, for main feed bar guide screw-----	2
10	39535	Main Feed Bar Guide, left -----	1
11	39534	Main Feed Bar, for all Styles except 39500 JF -----	1
-	39534 C	Main Feed Bar, for Style 39500 JF-----	1
12	39535 J	Feed Bar Guide Block -----	1
13	22797 A	Screw, for chaining feed dog -----	1
14		Chaining Feed Dog (See Pages 33, 35) -----	1
15	39534 G	Differential Feed Bar-----	1
16	39535 D	Differential Feed Bar Guide, right -----	1
17	22569 B	Screw, for differential feed bar guide, right -----	2
18	53634 C	Washer, for differential feed bar guide screw -----	2
19	39536 B	Feed Bar Driving Stud -----	2
20	22569 G	Screw, for thrust washer -----	3
21	39534 H	Differential Feed Bar Thrust Washer-----	1
22	39538	Feed Lift Block -----	1
23		Differential Feed Dog (See Pages 33, 35) -----	1
24	22528	Screw, for differential feed dog-----	1
25		Main Feed Dog (See Pages 33, 35) -----	1
26	93 A	Screw, for main feed dog -----	1
27		Differential Feed Driving Eccentric (See Chart Below) -----	1
28	39536 AE	Differential Feed Bar Driving Connection-----	1
29		Main Feed Driving Eccentric (See Chart Below) -----	1
30	39536 C	Feed Bar Driving Stud Bushing -----	2
31	39536 AF	Main Feed Bar Driving Connection-----	1
32	40-46	Washer, for crankshaft-----	1
33	258	Nut, for crankshaft-----	1
34	39536 E	Nut, for feed bar driving stud -----	2
35	14077	Nut, for needle clamp stud -----	1
36	39551 A	Needle Clamp Washer, for all Styles except 39500 JG-----	1
36A	39563 Z	Needle Thread Pull-up Eyelet, for Style 39500 JG -----	1
37		Needle -----	1
38	39552	Needle Driving Arm, marked "B", for all Styles except 39500 JF, JG -----	1
-	39552 J	Needle Driving Arm, marked "F", for Style 39500 JF, JG -----	1
39	50-774 Blk.	Stop Pin, for needle -----	1
40	22596 E	Screw, for needle driving arm-----	1
41	39551 F	Needle Clamp Stud -----	1
42	39568 A	Looper Thread Pull-off-----	1
43	39568 Y	Looper Thread Pull-off Lever -----	1
44	88 B	Screw, for looper thread pull-off lever -----	2
45	660-207	Oil Seal Ring, for needle driving shaft-----	1
46	39552 C	Needle Driving Arm Crank Thrust Washer -----	2
47	87 U	Screw, for oil splasher -----	1
48	39594 N	Oil Splasher -----	1
49	39552 R	Needle Driving Shaft-----	1
50	22513	Screw, for looper thread pull-off -----	1
51	87 U	Screw, for needle thread cam pull-off -----	1
52	39563 G	Needle Thread Cam Pull-off-----	1

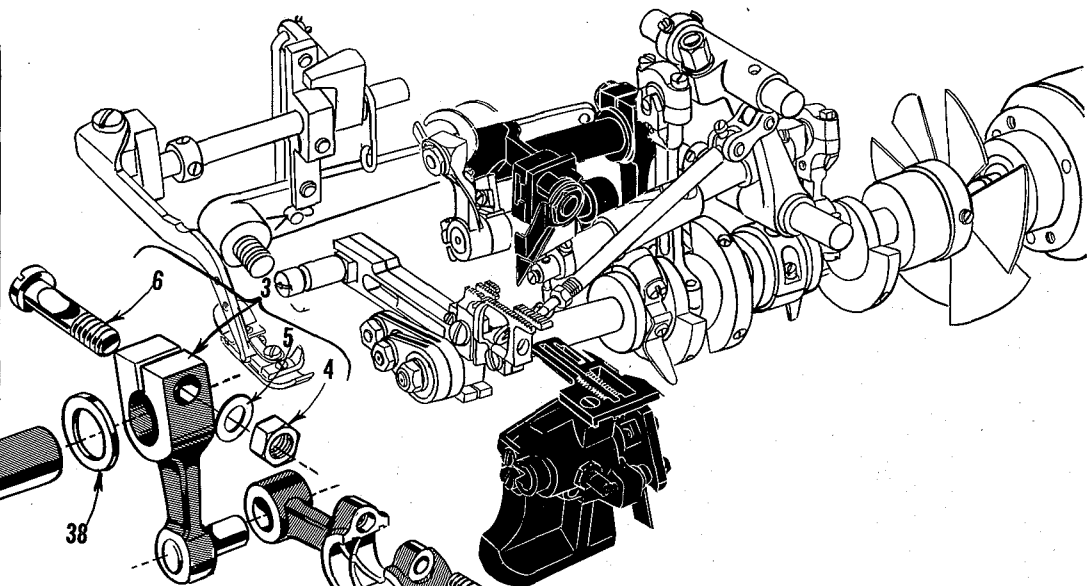
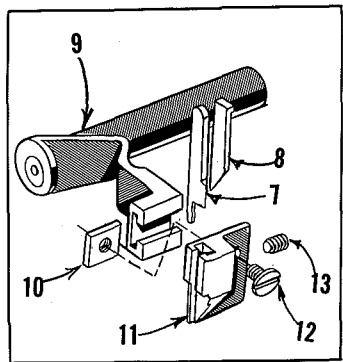
Styles	Det. 27	Det. 29
	Diff. Feed Driving Ecc.	Main Feed Driving Ecc.
39500 FA	39540 B-12	39540 B-10
39500 FB, FP, GF	39540 B-10	39540 B-12
39500 FY, GA	39540 B-6	39540 B-10
39500 GS	39540 B-14	39540 B-14
39500 JE	39540 B-12	39540 B-9
39500 JF	39540 B-4	39540 B-10
39500 JG	39540 B-9	39540 B-9



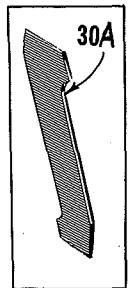
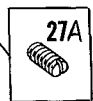
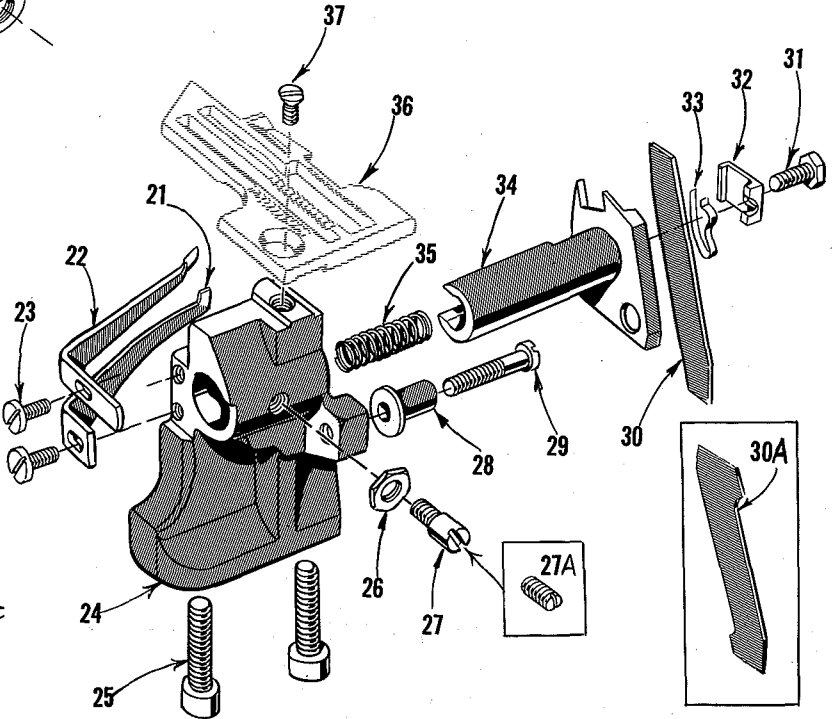
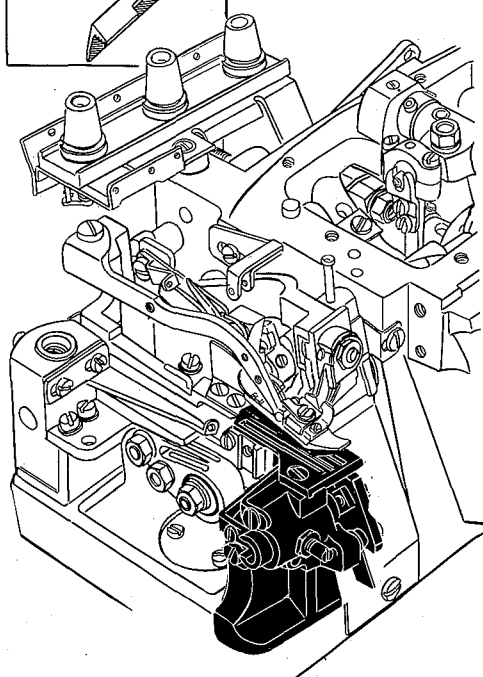
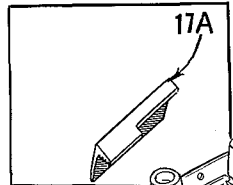
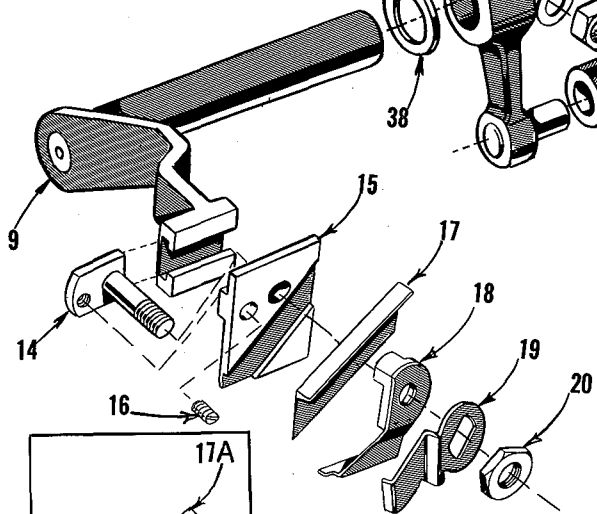
UPPER AND LOWER LOOPER DRIVING PARTS

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Amt. Req.</u>
3	39508 A	Upper Looper, marked "CC", for Styles 39500 FA, FB, FP, GF, GS, JE, JG -----	1
	39508 E	Upper Looper, marked "CK", for Styles 39500 FY, GA, JF -----	1
4	39543	Upper Looper Holder -----	1
5	22564 G	Screw, for upper looper -----	1
6	39543 A	Upper Looper Holder Collar -----	1
7	22 KH	Screw, for upper looper holder collar -----	1
8	22503 F	Screw, for cam follower locking clamp -----	1
9	39543 E	Cam Follower Locking Clamp -----	1
10	22565 H	Screw, for bushing and cam guide -----	1
10A	1025 L	Lock Screw, for bushing and cam guide screw -----	1
11	39543 T	Cam Follower -----	1
*12	39543 S	Bushing and Cam Guide -----	1
*13	39543 K	Upper Looper Drive Shaft -----	1
14	97	Screw, for ball joint guide fork -----	2
15	39544 J	Ball Joint Guide Fork, for upper looper drive assembly -----	1
16	482 C	Upper Looper Shaft Collar -----	1
17	22894 C	Screw, for upper looper shaft collar -----	2
18	22565	Screw, for upper looper drive lever shaft -----	2
19	39543 X	Upper Looper Drive Lever Shaft -----	1
20	39543 W	Upper Looper Drive Lever -----	1
21	39543 M	Clamp Collar, for upper looper drive lever shaft -----	1
22	22562 A	Screw, for clamp collar -----	1
23	39543 P	Upper Looper Shaft Thrust Washer -----	2
24	39543 U	Upper Looper Connecting Rod -----	1
25	22729 D	Screw, for upper looper connecting rod -----	4
26	87 U	Screw, for oil splasher -----	1
27	39594 N	Oil Splasher -----	1
28	666-255	Felt, for connecting rod -----	1
29	77	Screw, for lower looper bar connecting link pin -----	1
30	39544 B	Lower Looper Bar Connecting Link -----	1
31	39544 D	Lower Looper Bar Connecting Link Pin -----	2
32	77	Screw, for lower looper bar connecting link pin -----	1
33	22894 AD	Screw, for lower looper driving shaft -----	2
34	482 C	Lower Looper Driving Shaft Collar -----	1
35	22894 C	Screw, for lower looper driving shaft collar -----	2
36	660-206	"O" Ring, for lower looper driving shaft -----	1
37	39544 V	Lower Looper Driving Shaft -----	1
38	39508 B	Lower Looper, for Styles 39500 FA, FB, FP, GF, GS, JE, JG -----	1
38A	39508 D	Lower Looper, for Styles 39500 FY, GA, JF -----	1
39	39151	Nut, for lower looper bar -----	1
40	39544	Lower Looper Bar -----	1
41	39594 N	Oil Splasher -----	1
42	87 U	Screw, for oil splasher -----	1
43	29126 DF	Lower Looper Bar Driving Lever and Connecting Rod Assembly -----	1
44	22729 E	Screw, for connecting rod -----	2
45	39544 N	Lower Looper Drive Lever Connecting Rod -----	1
46	39544 S	Ball Joint Guide Fork -----	1
47	97	Screw, for ball joint guide fork -----	2
48	22729 D	Screw, for connecting rod -----	2
49	666-255	Felt, for connecting rod -----	1
50	39544 U	Lower Looper Bar Driving Lever -----	1

\* The use of assembly No. 29126 EC is recommended instead of the individual parts.

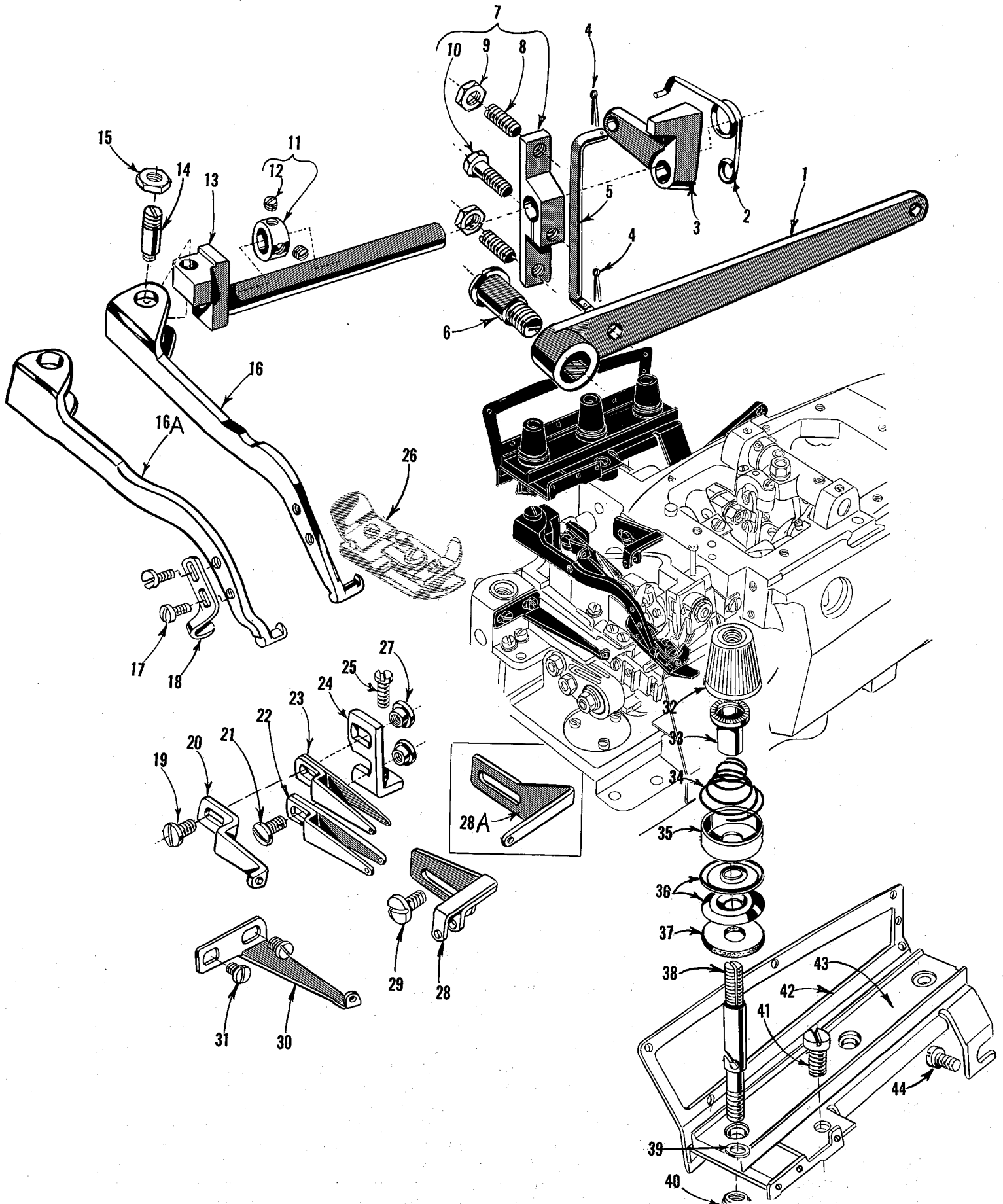


TORQUE TO  
19-21 in. lbs.



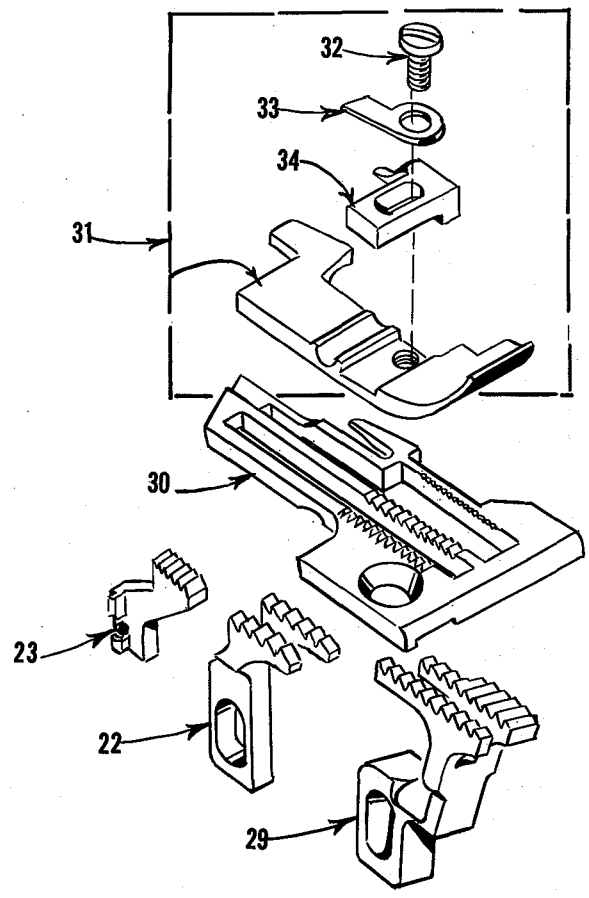
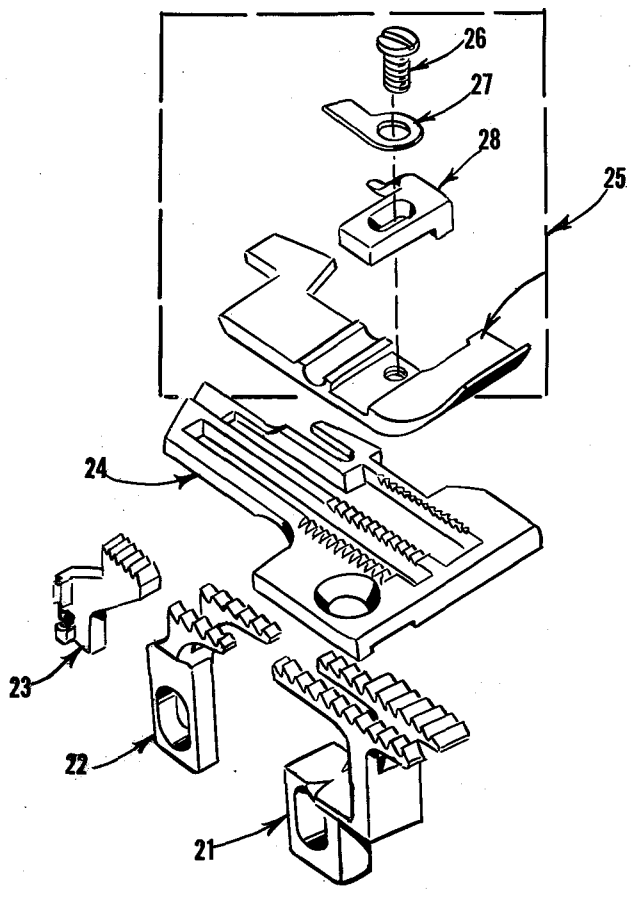
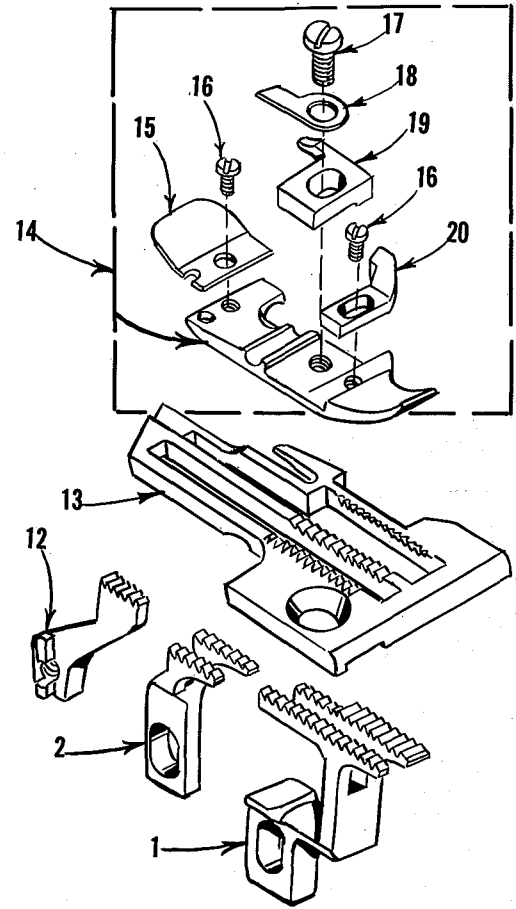
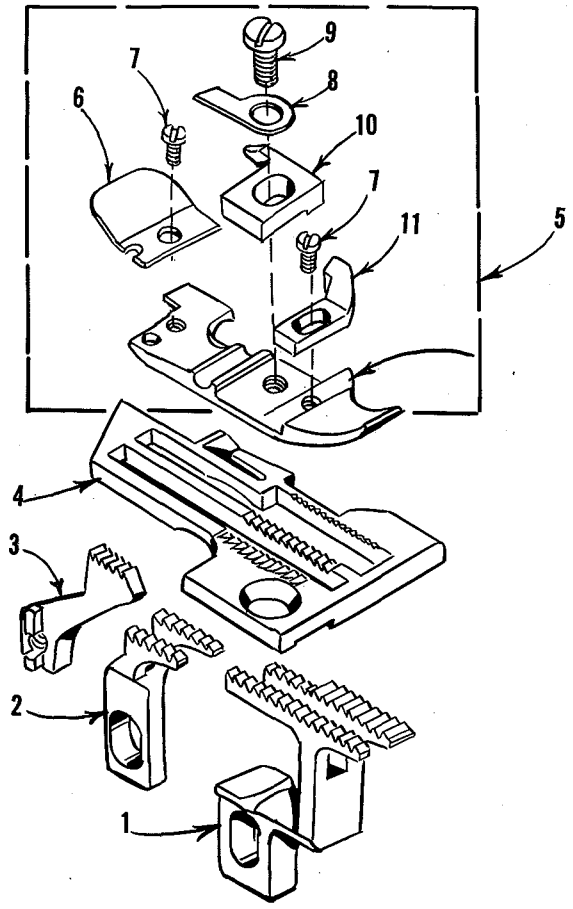
UPPER AND LOWER KNIFE MECHANISM

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Amt. Req.</u>
1	39573 J	Upper Knife Driving Connecting Rod -----	1
2	22587 J	Screw, for upper knife driving connecting rod -----	2
3	39573 E	Upper Knife Driving Lever -----	1
4	55235 E	Nut, for upper knife driving lever -----	1
5	6042 A	Washer, for upper knife driving lever -----	1
6	55235 D	Locking Stud, for upper knife driving lever -----	1
7	39270 E	Upper Knife, for Style 39500 JF -----	1
8	39571 E	Upper Knife Clamp Bar, for Style 39500 JF -----	1
9	39573 H	Upper Knife Driving Arm -----	1
10	39571 A	Upper Knife Clamp Nut, for Style 39500 JF -----	1
11	39572 B	Upper Knife Holder, for Style 39500 JF -----	1
12	22829	Screw, for upper knife holder on Style 39500 JF -----	1
13	22650 CB-4	Screw, for upper knife on Style 39500 JF -----	1
14	39571 D	Upper Knife Clamp Stud, for all Styles except 39500 JF, JG -----	1
	39571 C	Upper Knife Clamp Stud, for Style 39500 JG -----	1
15	39572	Upper Knife Holder Block, for all Styles except 39500 JF, JG -----	1
	39572 A	Upper Knife Holder Block, for Style 39500 JG -----	1
16	22738	Screw, for upper knife clamp stud on all Styles except 39500 JF -----	1
17	39570	Upper Knife, for all Styles except 39500 FY, GA, JF -----	1
17A	39570 K	Upper Knife, for Styles 39500 FY, GA -----	1
18	39571 F	Upper Knife Clamp, for all Styles except 39500 JF -----	1
19	39571 B	Upper Knife Chain Guard, for all Styles except 39500 JF -----	1
20	14077	Nut, for upper knife clamp stud on all Styles except 39500 JF -----	1
21	39525	Needle Guard, front, for all Styles except 39500 JF -----	1
	39525 L	Needle Guard, front, for Style 39500 JF -----	1
22	39525 A	Needle Guard, rear -----	1
23	22585 A	Screw, for needle guard -----	2
24	39580 A	Throat Plate and Lower Knife Support Bracket, for Styles 39500 FA, FB, FP, FY, GF, GS, JE, JG -----	1
	39580 AD	Throat Plate and Lower Knife Support Bracket, for Styles 39500 GA, JF -----	1
25	22653 B-12	Screw, for throat plate and lower knife support bracket --	2
26	14077	Nut, for lower knife holder locking screw -----	1
27	22892 B	Locking Screw, for lower knife holder on all Styles except 39500 JF -----	1
27A	88 B	Locking Screw, for lower knife holder on Style 39500 JF -----	1
28	39550 C	Lower Knife Holder Locking Stud -----	1
29	22729 B	Screw, for lower knife holder locking stud -----	1
30	39549	Lower Knife, for all Styles except 39500 FY, GA, JF -----	1
30A	39549 J	Lower Knife, for Styles 39500 FY, GA, JF -----	1
31	22588 A	Screw, for lower knife holder -----	1
32	39550 L	Lower Knife Clamp -----	1
33	39550 M	Lower Knife Clamp Spring -----	1
34	39550 S	Lower Knife Holder, for all Styles except 39500 JF -----	1
-	39550 U	Lower Knife Holder, for Style 39500 JF -----	1
35	39550 E	Lower Knife Holder Spring, for all Styles except 39500 JG -----	1
	39550 P	Lower Knife Holder Spring, for Style 39500 JG -----	1
36		Throat Plate, (See Pages 33, 35) -----	1
37	22524	Screw, for throat plate -----	1
38	39573 A	Upper Knife Driving Arm Washer -----	1



FOOT LIFTER, THREAD TENSION PARTS AND MISCELLANEOUS EYELETS

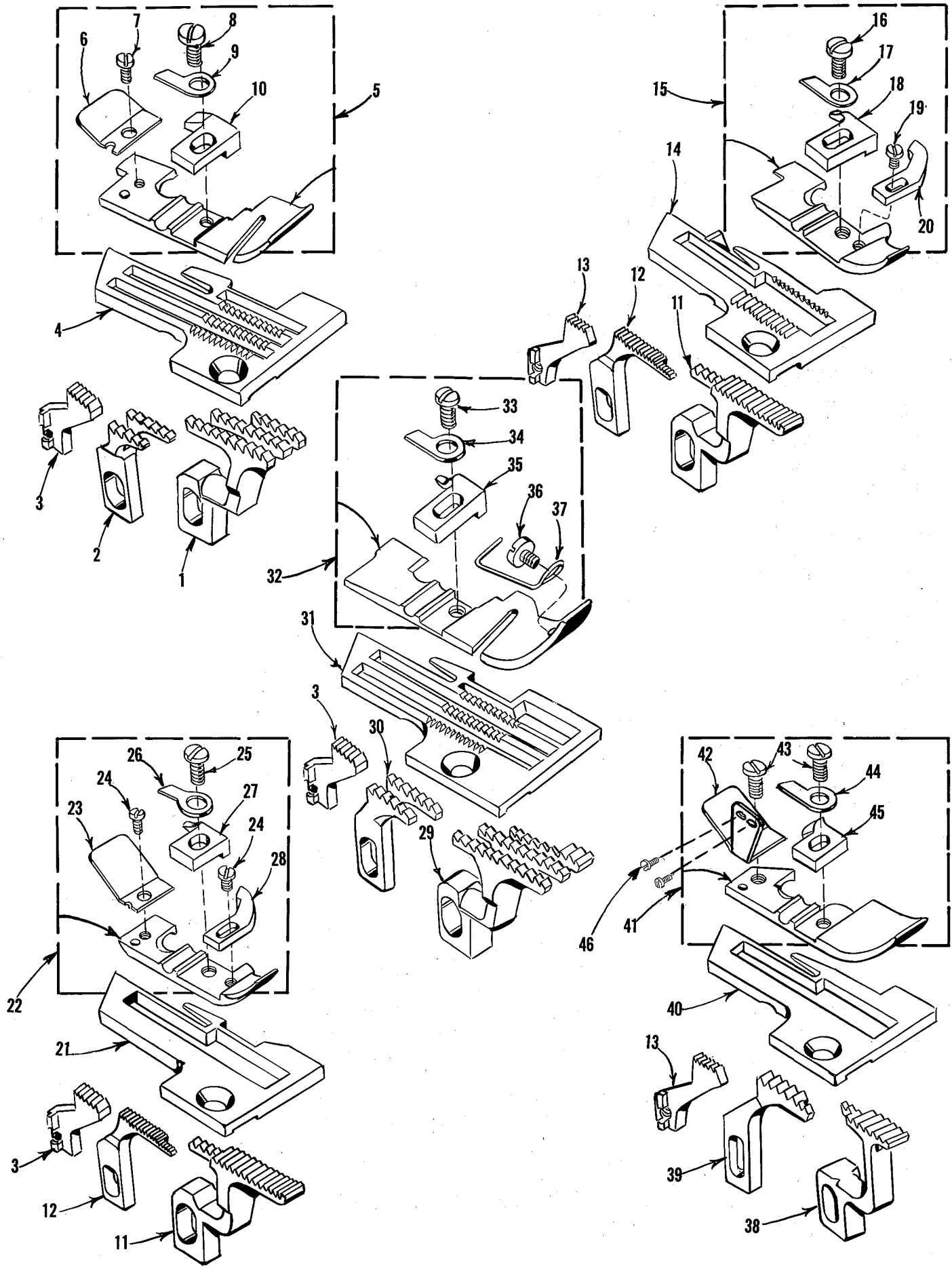
<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Amt. Req.</u>
1	39555	Foot Lifter Lever -----	1
2	39555 B	Foot Lifter Lever Spring -----	1
3	39555 D	Foot Lifter Intermediate Lever -----	1
4	660-142	Cotter Pin, for foot lifter lever connecting link -----	2
5	39555 F	Foot Lifter Lever Connecting Link -----	1
6	22566 B	Screw, for foot lifter lever -----	1
7	39555 C	Foot Lifter Lever Arm -----	1
8	22597 E	Screw, for foot lifter lever arm -----	2
9	12538	Lock Nut, for foot lifter lever arm -----	2
10	627	Screw, for foot lifter lever arm -----	1
11	12865	Foot Lifter Lever Shaft Thrust Collar -----	1
12	88	Screw, for foot lifter lever shaft collar -----	2
13	39555 A	Foot Lifter Lever Shaft -----	1
14	22791 H	Screw, for presser arm -----	1
15	258 A	Nut, for presser arm screw -----	1
16	39556 E	Presser Arm, for Style 39500 GA -----	1
	39556 P	Presser Arm, for Style 39500 JG -----	1
16A	39556 F	Presser Arm, for Styles 39500 FA, FB, FP, FY, GF, GS -----	1
	39556 J	Presser Arm, for Style 39500 JE -----	1
17	605 A	Screw, for presser foot hold down plate -----	2
18	39556 H	Presser Foot Hold Down Plate, for Styles 39500 GS, JG -----	1
19	376 A	Screw, for upper looper thread eyelet -----	1
20	39568 E	Auxiliary Looper Thread Eyelet, for all Styles except 39500 FY, GA, JF -----	1
	39568 U	Auxiliary Looper Thread Eyelet, for Styles 39500 FY, GA, JF -----	1
21	376 A	Screw, for lower looper thread eyelet -----	1
22	39568 B	Lower Looper Thread Eyelet, for all Styles except 39500 FY, GA, JF -----	1
	39568 S	Lower Looper Thread Eyelet, for Styles 39500 FY, GA, JF -----	1
23	39568 L	Upper Looper Thread Eyelet, for all Styles except 39500 FY, GA, JF, JG -----	1
	39568 B	Upper Looper Thread Eyelet, for Style 39500 JG -----	1
	39568 T	Upper Looper Thread Eyelet, for Styles 39500 FY, GA, JF -----	1
24	39568 D	Looper Thread Eyelet Mounting Bracket -----	1
25	22569 B	Screw, for looper thread eyelet mounting bracket -----	1
26		Presser Foot, (See Pages 33, 35) -----	1
27	43139 A	Nut, for looper thread eyelet screw -----	2
28	39563 H	Needle Thread Eyelet, for all Styles except 39500 FY, GA, JF, JG -----	1
	39563 U	Needle Thread Eyelet, for Styles 39500 FY, GA, JF -----	1
28A	39563 D	Needle Thread Eyelet, for Style 39500 JG -----	1
29	22569 D	Screw, for needle thread eyelet -----	1
30	39568 W	Frame Thread Guide, for lower looper thread -----	1
31	73 X	Screw, for frame thread guide -----	2
32	39592 AA	Needle Tension Nut, green -----	1
	39592 AB	Upper Looper Tension Nut, blue -----	1
	39592 AC	Lower Looper Tension Nut, red -----	1
33	39592 AK	Tension Spring Ferrule -----	3
34	39592 AR-5	Upper and Lower Looper Thread Tension Spring, for Styles 39500 FA, FB, FP, GF, JE -----	2
	39592 AR-4	Upper and Lower Looper Thread Tension Spring, for Styles 39500 FY, GA, GS, JF -----	2
	39592 AR-8	Needle Thread Tension Spring, for all Styles except 39500 JG -----	1
	39592 AR-4	Upper Looper and Needle Thread Tension Spring, for Style 39500 JG -----	2
	39592 AR-8	Lower Looper Thread Tension Spring, for Style 39500 JG -----	1
35	39592 AJ	Spring Shield -----	3
36	39592 AD	Thread Tension Disc -----	6
37	39592 AF	Tension Disc Felt -----	3
38	39592 AL	Tension Post -----	3
39	8372 A	Washer, for tension post -----	3
40	39592 AH	Locating Nut, for tension post -----	3
41	22806 A	Screw, for tension post mounting bracket -----	1
42	39592 AG-3	Tension Post Mounting Bracket -----	1
43	39592 AM	Tension Post Bar -----	1
44	22847 B	Screw, for tension post mounting bracket -----	1





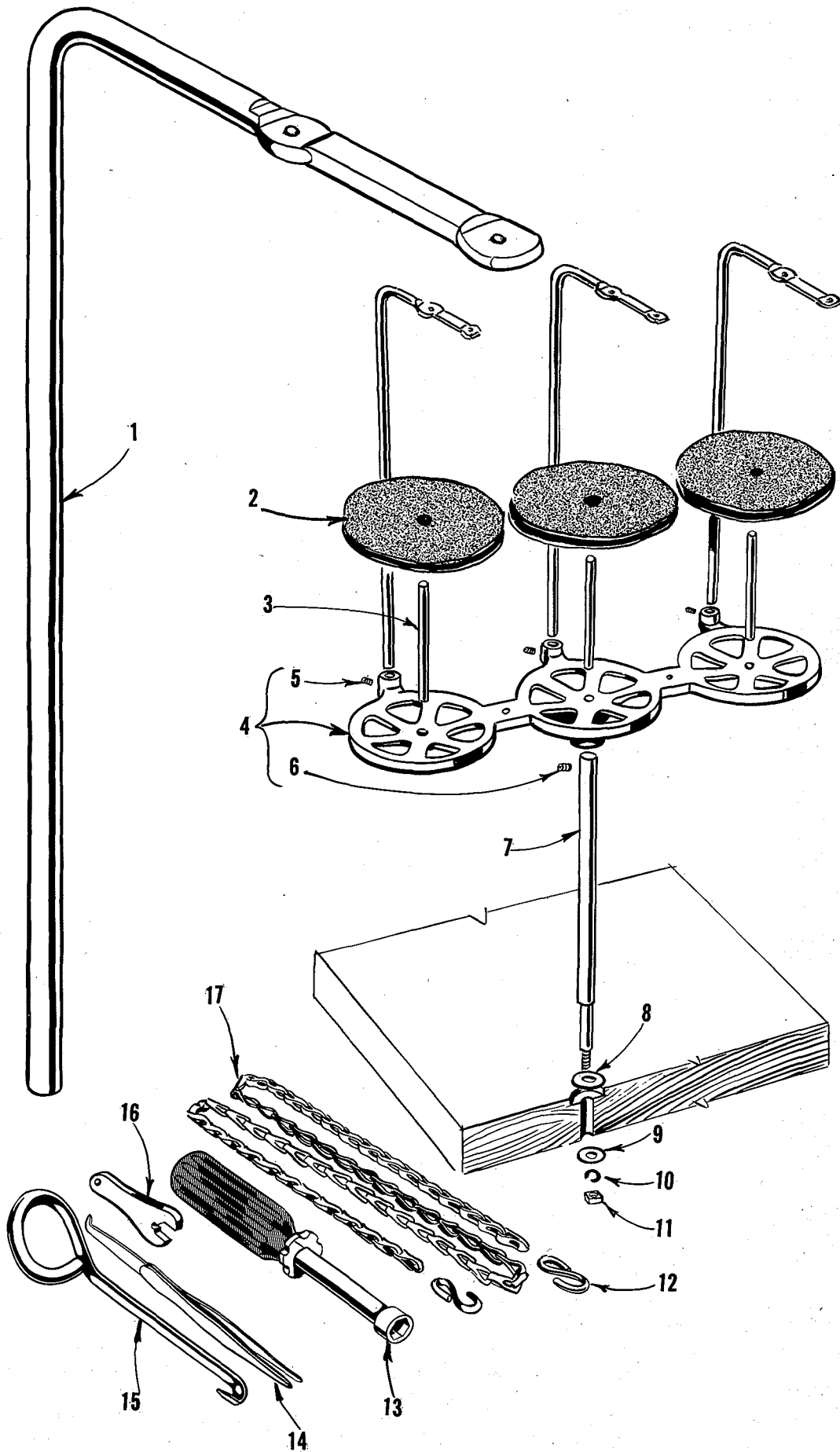
FEED DOGS, THROAT PLATES AND PRESSER FEET

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Amt. Req.</u>
1	39526 B	Differential Feed Dog, 16 t.p.i., for Styles 39500 FA, FB, GF-----	1
2	39505 B	Main Feed Dog, marked "B", 16 t.p.i., for Styles 39500 FA, FB, GF-----	1
3	39505 C	Chaining Feed Dog, marked "C", 20 t.p.i., for Styles 39500 FA, GS, JG-----	1
4	39524 C-3/32	Throat Plate, marked "AC-3/32", for 3/32 inch wide seam on Style 39500 FA-----	1
-	39524 C-1/8	Throat Plate, marked "AC-1/8", for 1/8 inch wide seam on Style 39500 FA-----	1
5	39520 B	Presser Foot, for Style 39500 FA-----	1
6	39530 C	Presser Foot Chain Shield-----	1
7	22738 B	Screw, for chain shield and chip guard-----	2
8	39530	Presser Foot Hinge Spring-----	1
9	22768 B	Screw, for stitch tongue and hinge spring-----	1
10	39597 A	Presser Foot Stitch Tongue, marked "DS"-----	1
11	39530 P	Presser Foot Chip Guard-----	1
12	39505	Chaining Feed Dog, 20 t.p.i., for Styles 39500 FB, GF-----	1
13	39524 B-3/32	Throat Plate, marked "V-3/32", for 3/32 inch wide seam for Styles 39500 FB, GF-----	1
-	39524 B-1/8	Throat Plate, marked "V-1/8", for 1/8 inch wide seam for Styles 39500 FB, GF-----	1
-	39524 B-5/32	Throat Plate, marked "BH", for 5/32 inch wide seam for Style 39500 GF-----	1
14	39520 A	Presser Foot, for Styles 39500 FB, GF-----	1
15	39530 C	Presser Foot Chain Shield-----	1
16	22738 B	Screw, for chain shield and chip guard-----	2
17	22768 B	Screw, for stitch tongue and hinge spring-----	1
18	39530	Presser Foot Hinge Spring-----	1
19	39597 A	Presser Foot Stitch Tongue, marked "DS"-----	1
20	39530 P	Presser Foot Chip Guard-----	1
21	39526 P	Differential Feed Dog, 12 t.p.i., for Style 39500 FP-----	1
22	39505 P	Main Feed Dog, marked "J", 12 t.p.i., for Styles 39500 FP, FY, GA-----	1
23	39505 E	Chaining Feed Dog, 20 t.p.i., for Styles 39500 FP, FY, GA, JE, JF-----	1
24	39524 P	Throat Plate marked "AJ", for 1/8 inch wide seam for Style 39500 FP-----	1
25	39520 P	Presser Foot, for Style 39500 FP-----	1
26	22768 B	Screw, for stitch tongue and hinge spring-----	1
27	39530	Presser Foot Hinge Spring-----	1
28	39597 P	Presser Foot Stitch Tongue, marked "EA"-----	1
29	39526 Y	Differential Feed Dog, marked "AB", 12 t.p.i., for Style 39500 FY-----	1
30	39524 Y	Throat Plate, marked "AS", for 1/8 inch wide seam for Style 39500 FY-----	1
31	39520 Y	Presser Foot, for Style 39500 FY-----	1
32	22768 B	Screw, for stitch tongue and hinge spring-----	1
33	39530	Presser Foot Hinge Spring-----	1
34	39597 P	Presser Foot Stitch Tongue, marked "EA"-----	1



FEED DOGS, THROAT PLATES AND PRESSER FEET

Ref. No.	Part No.	Description	Amt. Req.
1	39526 AA	Differential Feed Dog, marked "AA", 12 t.p.i., for Style 39500 GA -----	1
2	39505 P	Main Feed Dog, marked "J", 12 t.p.i., for Styles 39500 FP, FY, GA-----	1
3	39505 E	Chaining Feed Dog, 20 t.p.i., for Styles 39500 FP, FY, GA, JE, JF-----	1
4	39524 AA	Throat Plate, marked "AT", for 5/32 inch wide seam for Style 39500 GA-----	1
5	39520 AA	Presser Foot, for Style 39500 GA -----	1
6	39530 C	Presser Foot Chain Shield-----	1
7	22738	Screw, for presser foot chain shield-----	1
8	22768 B	Screw, for stitch tongue and hinge spring-----	1
9	39530	Presser Foot Hinge Spring-----	1
10	39597 AA	Presser Foot Stitch Tongue, marked "EG" -----	1
11	39526 AC	Differential Feed Dog, 22 t.p.i., for Styles 39500 GS, JE----	1
12	39505 AC	Main Feed Dog, marked "AM", 22 t.p.i., for Styles 39500 GS, JE-----	1
13	39505 C	Chaining Feed Dog, marked "C", 20 t.p.i., for Styles 39500 FA, GS, JG-----	1
14	39524 AS	Throat Plate, marked "BE", for 3/32 inch wide seam for Style 39500 GS-----	1
15	39520 AS	Presser Foot, for Style 39500 GS-----	1
16	22768 B	Screw, for stitch tongue and hinge spring-----	1
17	39530	Presser Foot Hinge Spring-----	1
18	39597 AS	Presser Foot Stitch Tongue, marked "ES"-----	1
19	22738 B	Screw, for presser foot chip guard-----	1
20	39530 P	Presser Foot Chip Guard-----	1
21	39528 AD	Throat Plate, marked "BJ", for 1/8 inch wide seam for Style 39500 JE-----	1
22	39527 AD	Presser Foot, for Style 39500 JE-----	1
23	39530 R	Presser Foot Chain Shield-----	1
24	22738	Screw, for presser foot chain shield-----	2
25	22768 B	Screw, for stitch tongue and hinge spring-----	1
26	39530 G	Presser Foot Hinge Spring-----	1
27	39597 AB	Presser Foot Stitch Tongue, marked "EK"-----	1
28	39530 P	Presser Foot Chip Guard-----	1
29	39526 BF	Differential Feed Dog, marked "BZ", 12 t.p.i., for Style 39500 JF-----	1
30	39505 BF	Main Feed Dog, marked "BY", 12 t.p.i., for Style 39500 JF-----	1
31	39524 BF	Throat Plate, marked "BK", for 1/8 inch wide seam for Style 39500 JF-----	1
32	39520 BF	Presser Foot, for Style 39500 JF-----	1
33	22768 B	Screw, for stitch tongue and hinge spring-----	1
34	39530	Presser Foot Hinge Spring-----	1
35	39597 P	Presser Foot Stitch Tongue, marked "EA"-----	1
36	22798 B	Screw, for presser foot tape guide-----	1
37	39530 BF	Presser Foot Tape Guide-----	1
38	39526 BG	Differential Feed Dog, 12 t.p.i., for Style 39500 JG-----	1
39	39505 BG	Main Feed Dog, marked "CH", 12 t.p.i., for Style 39500 JG-----	1
40	39524 BG	Throat Plate, for 3/32 inch wide seam for Style 39500 JG---	1
41	39520 BG	Presser Foot, for Style 39500 JG-----	1
42	39530 X	Presser Foot Chain Shield-----	1
43	22768 B	Screw, for stitch tongue and hinge spring-----	2
44	39530	Presser Foot Hinge Spring-----	1
45	39597 BG	Presser Foot Stitch Tongue, marked "EV"-----	1
46	22768	Screw, for presser foot hold down-----	2



THREAD STAND AND MISCELLANEOUS TOOLS

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Amt. Req.</u>
1	21113 F	Thread Stand Eyelet -----	3
2	21104 V	Pad, for thread cone -----	3
3	69 S	Spool Pin-----	3
4	21130 W-3	Cone Support -----	1
5	22650 CB-4	Screw, for spool pin-----	3
6	22650 CE-6	Screw, for cone support -----	1
7	21104 AA	Thread Stand Rod -----	1
8	652 J-24	Washer, for thread stand rod-----	1
9	652 J-16	Washer, for thread stand rod-----	1
10	WA9 A	Lock Washer, for thread stand rod-----	1
11	651 A-16	Nut, for thread stand rod -----	1
12	660-264	"S" Hook, for treadle chain -----	2
13	21388 AU	Socket Wrench, for 3/8 inch nuts holding feed eccentrics -----	1
14	660-240	Thread Tweezers -----	1
15	21227 BF	Feed Eccentric Extractor Hook -----	1
16	116	Wrench, for 9/32 inch nut-----	1
17	421 D-34	Treadle Chain, 34 inches long-----	1

ACCESSORIES AVAILABLE AS EXTRAS (Not Illustrated)

21233 HA	Light Fixture Assembly, with screw base sealed beam lamp, machine mounting for machines driven by "Electro Drive" which supplies current.
21261 M-350	No. 1 "V" Belt, 35 inches long, for fully submerged individual power table installations.
21261 M-370	No. 1 "V" Belt, 37 inches long, for semisubmerged individual power table installations.
21261 M-390	No. 1 "V" Belt, 39 inches long, for nonsubmerged individual power table installations.
21377 BP	Tray, 1 3/4 inches high, for semisubmerged installations.
21695 U	Finger Protector.
28604 R	Can of Oil, 16 fluid ounces of Spec. 174 oil.
39556 M	Presser Arm Chain Cutting Knife.
605	Screw, for presser arm chain cutting knife (two needed).
39598	Knife Grinder, complete..
51278 F	Chip Disposal Chute.

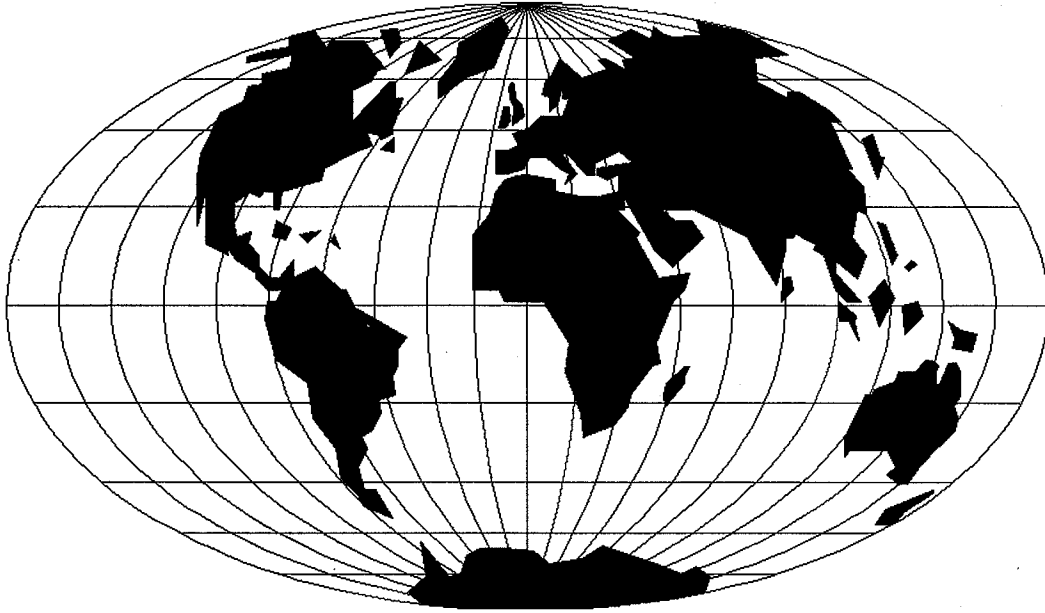
		<u>Belt Slot to Right Edge of Board</u>	<u>Cloth Plate to Front Edge of Board</u>
21371 UH	Individual Power Table		
21371 PJ-48	Table Top, 48 x 20 x 1 3/4 inches, for nonsubmerged individual power table installation - no chip chute;	14 inch	3/8 inch
21371 RD-48	Table Top, same except nonsubmerged - with chip chute;	7 1/2 inch	3 inch
21371 RF-48	Table Top, same except nonsubmerged - no chip chute;	7 1/2 inch	3/8 inch
21371 RJ-48	Table Top, same except semisubmerged - with chip chute	10 1/2 inch	2 1/4 inch
21371 RL-48	Table Top, same except semisubmerged - with chip chute;	7 1/2 inch	2 1/4 inch
21371 WL-48	Table Top, same except fullysubmerged - with chip chute;	7 1/2 inch	2 1/4 inch
21371 RC-47 3/4	Table Top, 47 3/4 x 16 x 1 3/4 inches, for nonsubmerged lineshaft installation - no chip chute;	7 1/2 inch	3/8 inch
21371 RE-47 3/4	Table Top, same except nonsubmerged - with chip chute;	7 1/2 inch	3 inch
21371 RH-47 3/4	Table Top, same except semisubmerged - with chip chute;	7 1/2 inch	2 1/4 inch

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