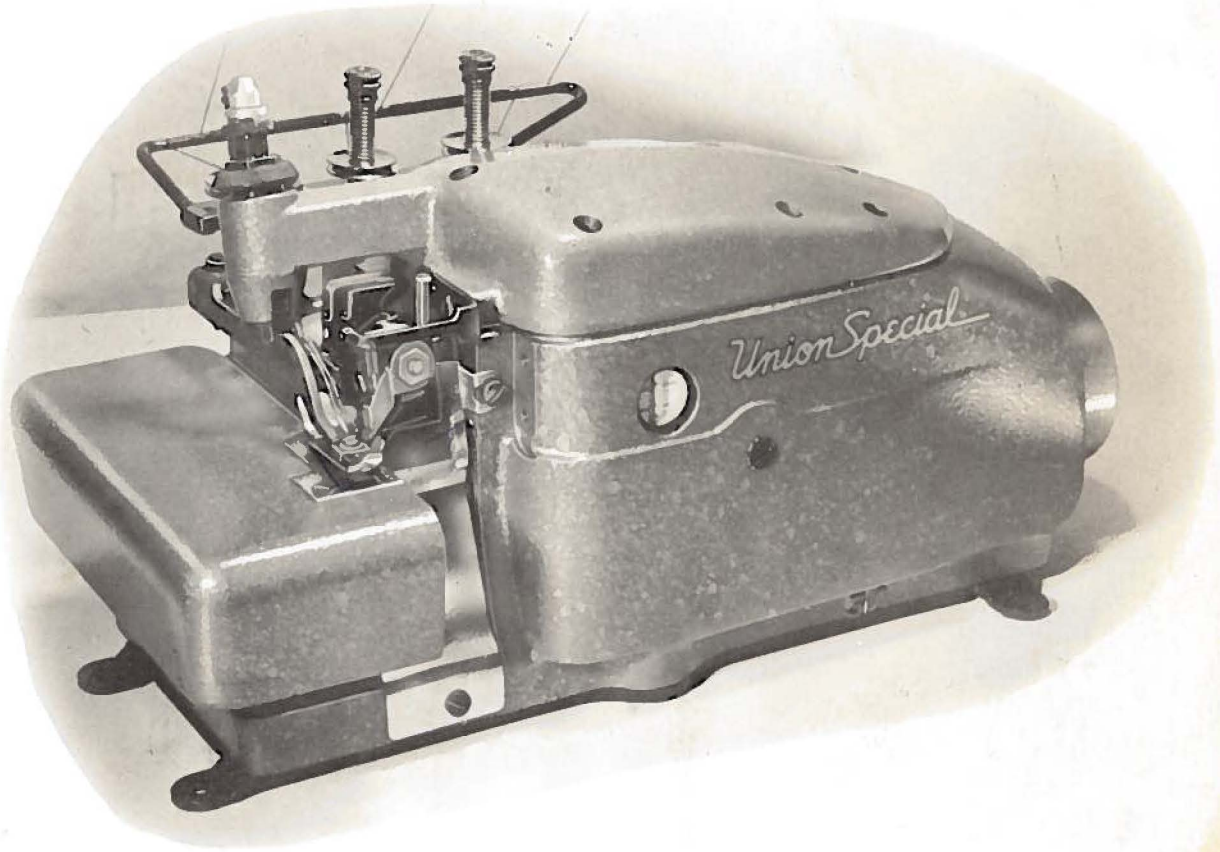
FINEST QUALITY

STYLE
39500AC-
060

CATALOG
No.
103AC

Union Special®
LEWIS • COLUMBIA

INDUSTRIAL
SEWING
MACHINES



CLASS 39500 AC

STREAMLINED
HIGH SPEED OVERSEAMERS

Union Special MACHINE COMPANY

CHICAGO

Catalog No. 103 AC
(Supplement to Catalog No. 103 S)

INSTRUCTIONS

FOR

ADJUSTING AND OPERATING

LIST OF PARTS

CLASS 39500

Style

39500 AC-060

The parts listed in this catalog are furnished at list prices for repairs only.

First Edition

Union Special
MACHINE COMPANY
INDUSTRIAL SEWING MACHINES
CHICAGO

Printed in U.S.A.

IDENTIFICATION OF MACHINE

Each Union Special machine is identified by a Style number which is stamped into the name plate.

Machines similar in construction are grouped by a Class number, which contains no letters. Example: "39500". Letters suffixed to a Class number indicates the standard Style of a machine. Example: "39500 AC-060". Letter "Z" is reserved as a suffix to the standard Style identification to specify machine is of "Special" construction.

APPLICATION OF CATALOG

This catalog is a supplement to Catalog No. 103 S and should be used in conjunction. Parts illustrated in this catalog represent parts not used in 39500 A, B, P or AF machines. For clarity, certain 39500 A, B, P and AF parts are shown in phantom to help locate 39500 AC-060 parts.

Opposite the illustration page, parts are identified by detail number, part number, description, and amount required.

Adjusting and operating instructions included represent only areas concerned with 39500 AC-060.

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

STYLE OF MACHINE

Two Needle, One Looper, One Spreader, Three Thread, Low Throw Overseaming Machine. Differential Feed, Trimming Mechanism With Spring Pressed Lower Knife, Automatic Lubricating System, .060 Inch Needle Spacing.

39500 AC-060 For closing men's, women's and children's half hose. Seam specification, Special SSa-1; standard seam width approximately 1/8 inch. Stitch range 20 to 100 per inch; standard setting 45 per inch. 3/16 inch sewing capacity.

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 200 to 250 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.

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.

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.

39500 AC-060 uses a curved blade needle. The standard needle for this style is Type 154 GDS. It is a slabbed shank, round point, .060 inch double slab, standard length, curved blade, double groove, struck groove, spotted, chromium plated needle in size 029.

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 GDS, Size 029".

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 (P, Fig. 1), and swing presser arm (D) out of position. Turn handwheel in the operating direction until needles are at their 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 needles are at high position. Withdraw needles.

To replace needles, leave needle holder at high position and, with the flats to the left, insert needles in holder until they rest against the stop pin. Keeping needles in this position, turn handwheel until holder is again at its low point of travel, then tighten nut. Return presser arm (D) to position; re-lock presser foot bushing (P).

THREAD STAND

After thread comes from thread cones (positioned on cone support (X)), it is brought up through BACK thread eyelet, then down through FRONT thread eyelet (R, Fig. 1). Next, thread is extended down through the right hand hole and up through left hand hole of the tension thread guide wire (A). Thread is then continued between tension discs (W), through slot (V), and on through thread guide (B).

THREADING

Only parts involved in threading are shown in threading diagram (Fig. 1). Parts are presented in their relative positions for clarity.

The following recommended procedure simplifies threading: Beginning with complete threading of lower looper, progress to complete threading of right needle, and conclude by complete threading for left needle. Steps for threading are given on following pages.

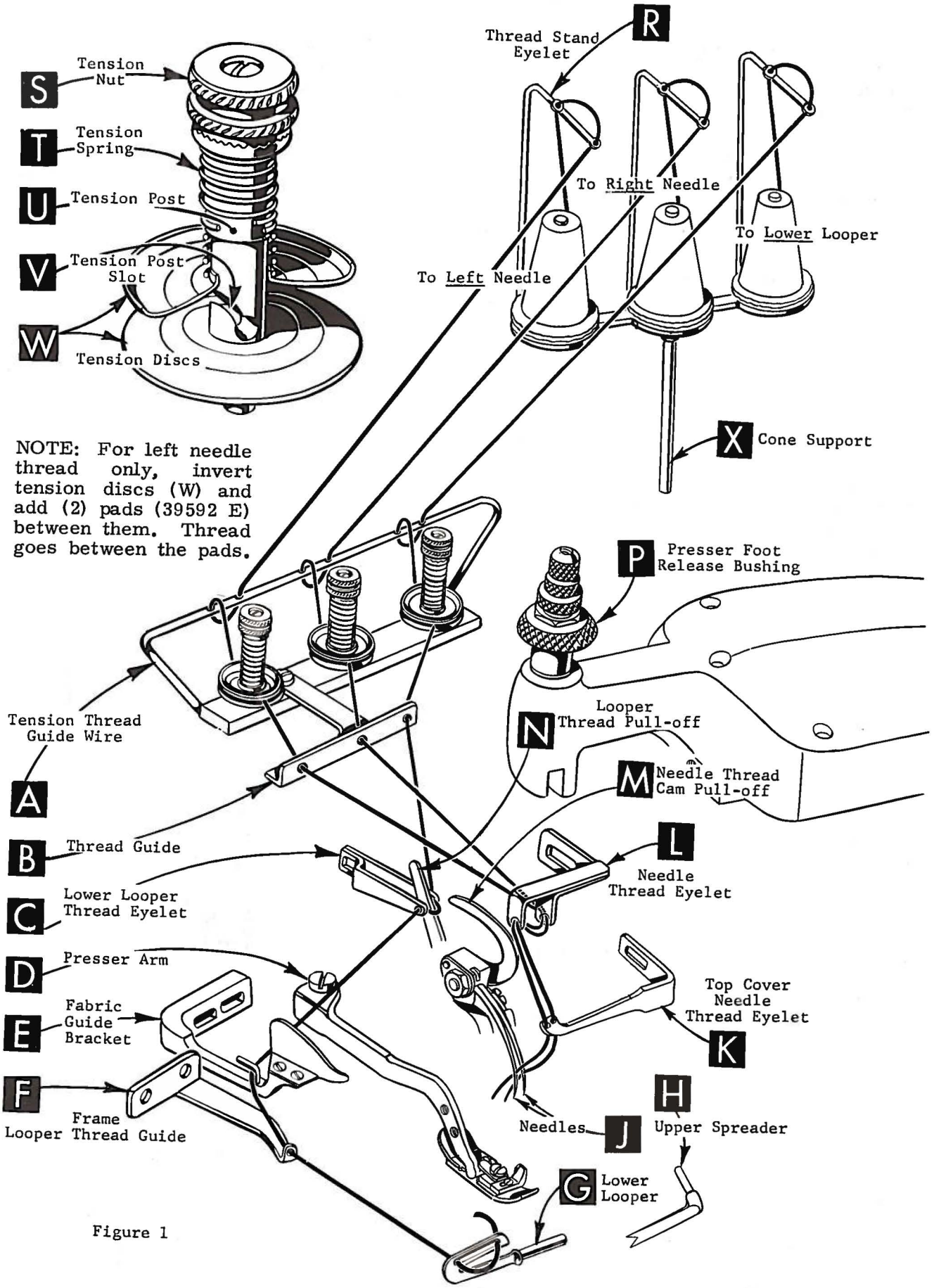


Figure 1

Prior to threading, swing cloth plate open, turn handwheel in operating direction to bring needles (J) into high position. Release pressure on presser foot by a counterclockwise turn of the release bushing (P), and then swing presser arm (D) out of position.

CAUTION! Make sure the threads, as they extend from the tension thread guide wire (A, Fig. 1), are between tension discs (W) and in diagonal slots (V) of the tension posts (U).

TO THREAD LOWER LOOPER

Double end of thread and lead it through both eyes of lower looper thread eyelet (C) from right to left. Note: thread must pass in front of looper thread pull-off (N). Lead thread through eyelet on top of fabric guard (E) and through eye of frame thread guide (F). Turn handwheel in operating direction until heel of lower looper (G) is all the way to the left; then, thread through both eyes from left to right. Right eye of lower looper can be threaded easily if tweezers are in left hand.

TO THREAD NEEDLES

Turn handwheel in operating direction until needles (J) are at their highest position. Insert both needle threads from right to left, through BOTH eyes of needle thread eyelet (L), under neck of top cover casting and then down through holes in top cover needle thread eyelet (K). The right needle thread should be threaded in the right hole and the left needle thread through the left hole of the top cover needle thread eyelet. Thread needles from the front.

THREAD TENSION

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

PRESSER FOOT PRESSURE

Sufficient pressure to feed the 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; tightening will increase pressure, loosening decreases the pressure. When pressure adjusting screw (B) has been properly set, tighten the 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 the adjusting screw (B). Set cap (D) against locking nut (C).

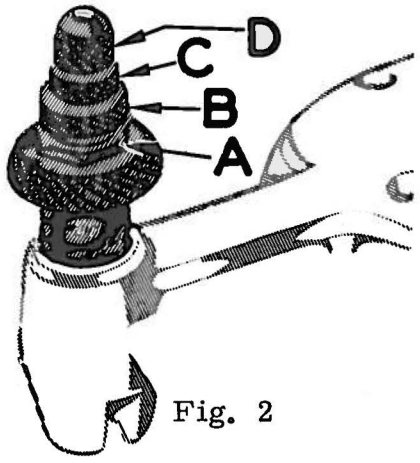


Fig. 2

FEED ECCENTRICS

On the 39500 AC-060 machine, eccentrics have been selected to produce approximately 35 stitches per inch. It will be noted on the 39500 AC-060 machine that the part number of the main feed eccentric is No. 39540-60, while that of the differential feed eccentric is No. 39540-30. Minor numbers of the part symbol indicate approximately the number of stitches obtainable when using that eccentric. Unless otherwise specified, the 39500 AC-060 machine will be shipped with the 39540-60 main feed eccentric and 39540-30 differential feed eccentric.

FEED ECCENTRICS (Continued)

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- 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 40, 50, 60, 70, 100. Only two eccentrics are supplied with each machine. Additional eccentrics may be ordered separately. To order, use No. 39540 with a minor number suffixed to indicate number of stitches desired. Example: 39540-70.

Fig. 3

ASSEMBLING AND ADJUSTING SEWING PARTS

Before assembling sewing parts, remove cloth plate, fabric guard, chip guard, upper knife assembly, lower knife assembly. Then, follow this suggested sequence.

SETTING THE NEEDLE

With throat plate in position, needles should center in the front end of needle slot. When needles are at high position, the needle points should be set 1/2 inch above throat plate (Fig. 3).

At this point, insert lower looper (A, Fig. 4) into bar (C). With lower looper at the left end of its stroke, set the looper point 1/8 inch from center of left needle, using looper gauge No. 21225 G-1/8. Do not have lower looper deflecting the needles. Tighten nut (B).

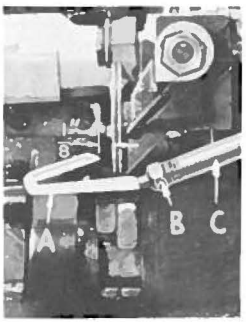


Fig. 4

SETTING THE REAR NEEDLE GUARD

Set rear needle guard as high as possible (A, Fig. 5) without interfering with either lower looper or movement of lower knife holder, but still in position to deflect needle forward .002 to .004 inch. Screw (B) is used to set the rear needle guard. Make sure there is no interference between the rear needle guard and lower looper.

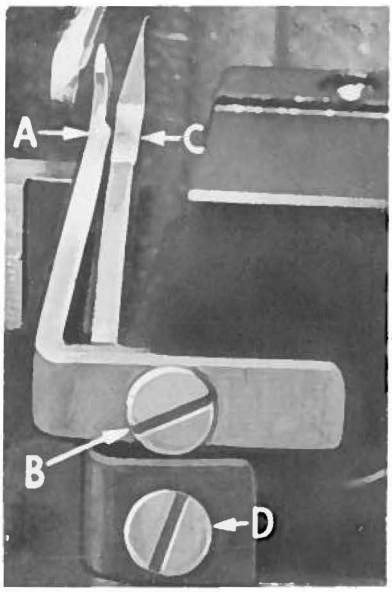


Fig. 5

SETTING THE LOWER LOOPER

Now, finish lower looper adjustment. As looper moves to the right, its point should be set into the needle scarfs (A, Fig. 6) until needles spring forward from rear guard surface another .002 to .004 inch.

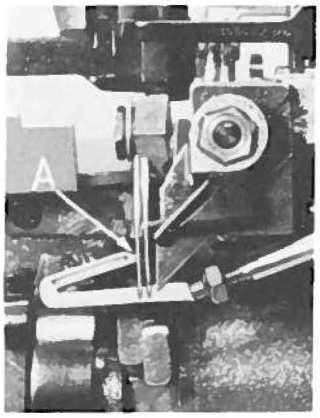


Fig. 6

SETTING THE FRONT NEEDLE GUARD

Assemble front needle guard (C, Fig. 5). When lower looper is springing needle off back guard, set the front needle guard as close as possible to needles without touching. Screw (D) is used to adjust and set front needle guard. After this setting, make sure there is no interference between the needle guards and differential feed dog.

SETTING THE UPPER SPREADER

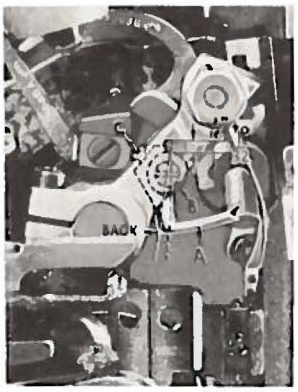


Fig. 7

Insert upper spreader (A, Fig. 7) in its holder. Screw (B) holds upper spreader in its holder and permits it to be pushed in or out or turned around its shank. Insert upper spreader holder into spreader shaft (if not already in place). Screw (C) on the clamp holds the upper spreader holder in the shaft. Locate upper spreader in its holder so that the shank extends 1/32 to 1/16 inch beyond holder (Fig. 7).

When the upper spreader is at the right end of its stroke, upper spreader holder should be set to position upper spreader shank back of vertical.

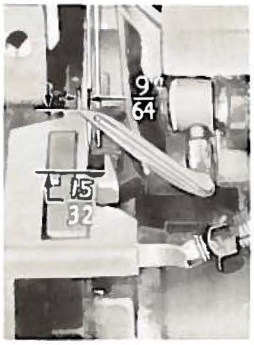


Fig. 8

Next, turn the handwheel until upper spreader is at the left end of its travel. Check dimensions of the lower point of the spreader with respect to needle and throat plate (Fig. 8) and the following dimensions; distance from centerline of left needle to point of spreader should be approximately 9/64 inch, and the distance from throat plate to point of spreader should be approximately 15/32 inch.

Check setting to avoid interference between upper spreader and needles on needle down stroke. If needles rub the back of upper spreader, pull spreader out of its holder slightly and rotate holder a short distance counterclockwise, looking from left end of machine. Reset to maintain dimensions suggested above and in Fig. 8.

SETTING THE FEED DOGS

Assemble and set the differential feed dog (A, Fig. 9) and main feed dog (B) so that top surfaces of the feeding surfaces all lay in the same plane. This can be checked by sighting across feeding surface with a straight edge. Feed surfaces should now be leveled with the throat plate surfaces by rotating feed tilting adjusting pin (D). This pin raises or lowers the back end of both feed bars at the same time.

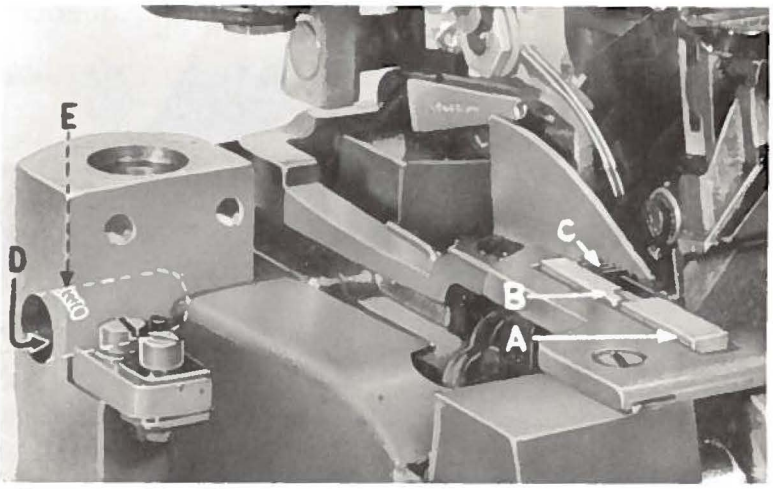


Fig. 9

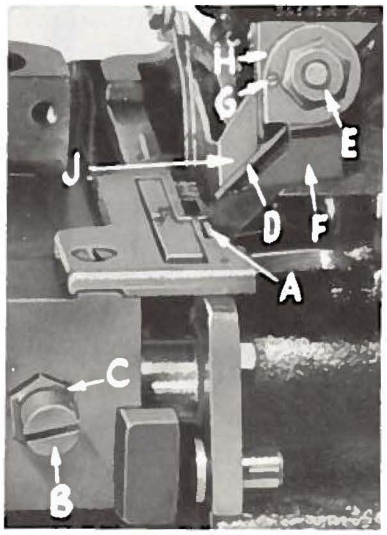


Fig. 10

The feeding surfaces should be set level at the time feeding surface first appears above the throat plate. Screw (E) locks feed tilting adjusting pin in place. Now, set feeding surfaces so they rise about 3/64 inch above throat plate.

Set chaining feed dog (C) level with top of throat plate when feed dog is at top of its travel.

SETTING THE LOWER KNIFE

Replace lower knife holder assembly. Lower knife (A, Fig. 10) 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.

SETTING THE LOWER KNIFE (Continued)

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.

SETTING THE UPPER KNIFE

Replace upper knife assembly. Clamp upper knife (D, Fig. 10) 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 (J) should be set down against the upper knife and slightly back from the cutting edge.

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

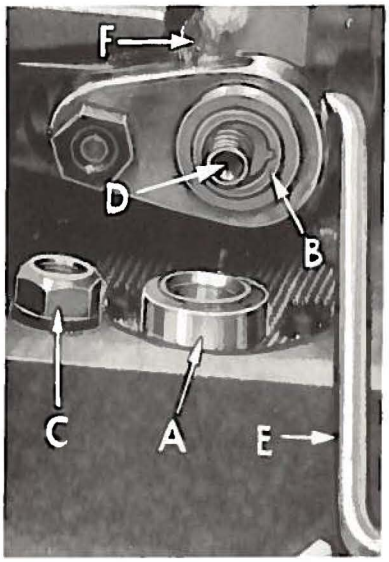


Fig. 11

SETTING THE STITCH LENGTH

Length of stitch is determined by the combination of feed eccentrics used. Outer (left) eccentric (A, Fig. 11) actuates main (rear) feed dog, while the inner (right) eccentric (B) actuates the differential (front) feed dog.

In assembling feed eccentrics, be sure hubs are facing each other. Be careful not to damage shaft or key. Tighten nut (C) securely. Be sure wool yarn in oil tube (F) touches feed eccentric connections.

To change feed eccentrics, remove nut (C) from end of shaft (D). Turn handwheel in operating direction until key slot in eccentric is toward front. Using hooked eccentric extractor (E), 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, Fig. 12) from shaft (D), it may be helpful to remove nut (G) and feed driving connection (H). Then, continue as originally suggested.

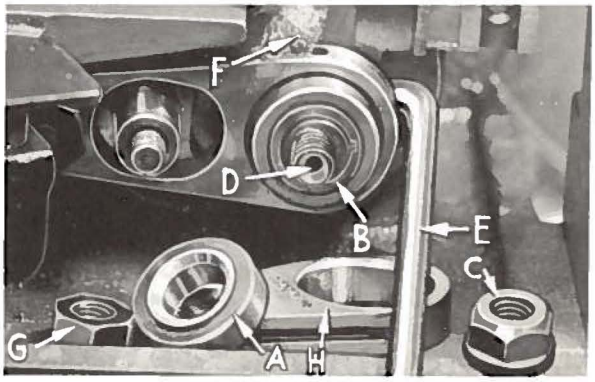


Fig. 12

SETTING THE PRESSER FOOT

Assemble presser foot to presser arm. With needle in high position, swing presser arm into sewing position and lock in place. If necessary, presser foot can be realigned with throat plate slots by shifting foot lifter lever shaft.

Foot lifter lever arm (A, Fig. 13) and collar (B) secure the shaft. Be sure presser arm does not bind and rise when presser foot release bushing is unlocked. To center presser foot and stitch tongue with respect to throat plate needle hole, loosen presser foot hinge screw.

Adjust lifter lever stop screw (C) so that presser foot can be raised no higher than upper spreader will permit; then, lock nut (D). To find this maximum safe position, turn the handwheel so point of upper spreader is directly over presser foot tongue. Raise presser foot by depressing the presser foot treadle and manually lower the toe of foot. Height adjustment is correct if presser foot tongue does not contact the upper spreader. There should be from 1/16 to 1/8 inch free motion of foot lifter lever before presser foot begins to rise. This adjustment is made with screw (E), locked with nut (F).

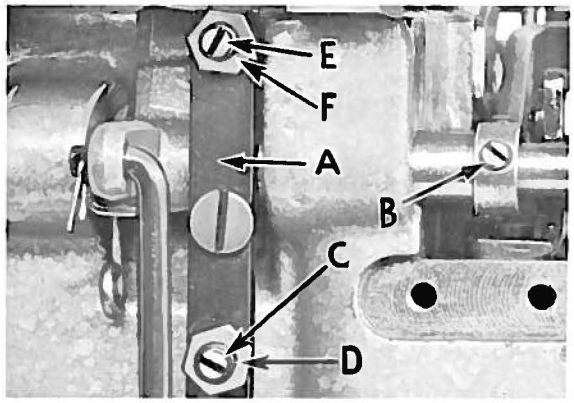


Fig. 13

Finally, re-assemble chip guard, fabric guard, cloth plate.

STARTING TO OPERATE

Be sure machine is threaded according to diagram for your style of machine (Fig. 1). With thread tensions light, set looper thread eyelet (C, Fig. 1) about horizontal and back in its front to back location. 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

While sewing on material, check needle thread control as follows: Usually, all needle threads are drawn from cones on needle down stroke. At top of stroke, thread should be just tight enough to feed chain off throat plate stitch tongue. With needle at bottom of stroke, position needle thread eyelet (L, Fig. 1) so that needle thread cam pull-off (M) just contacts needle thread. The eyelet (L) is adjusted correctly in its front to back position when the desired stitch is obtained with the least amount of needle thread tension when sewing over the complete speed range.

LOWER LOOPER THREAD CONTROL

During needle down stroke, forward stroke of looper thread pull-off (N, Fig. 1) will draw lower looper thread through the tension. When normal amount of looper thread is drawn, lower looper thread will have almost all slack taken up as looper thread pull-off reaches its most rearward position.

If lower looper thread has a loose appearance in the seam, move looper thread pull-off eyelet (C, Fig. 1) forward and raise slightly. If, however, the eyelet is raised too high and moved too far forward, the looper thread will tend to break excessively--even with a minimum amount of looper thread tension applied.

CAUTION! Do not try to obtain a tight looper thread appearance on the seam by carrying high tensions.

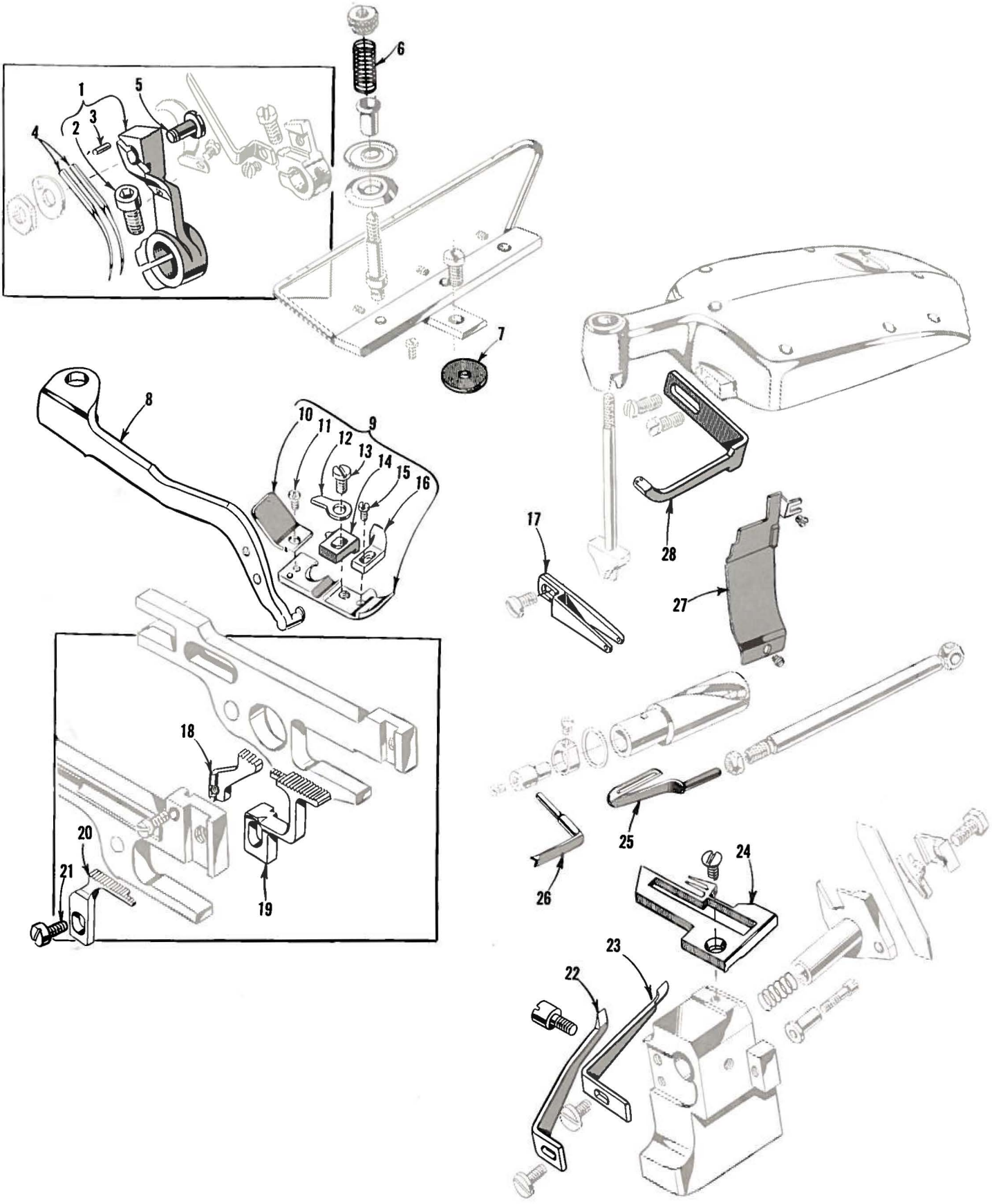
POSITIONING THE PURL TO OBTAIN A FLAT SEAM

If the purl is at the top edge of the garment, the seam can be opened into a near butted appearance. If, however, the purl is under the edge, a less flat and tighter seam results when opened.

Raising and bringing the looper thread pull-off eyelet (C, Fig. 1) forward causes less thread to be pulled from the cones as the looper travels to the top of its stroke and causes the purl to form more on the top of the edge. If the eyelet is raised and brought too far forward, however, the thread becomes too tight, resulting in looper thread breakage. With a reasonable amount of looper thread tension to insure a flexible chain, the looper thread pull-off eyelet should be adjusted to position the purl as desired.

THREAD TENSIONS WITH RESPECT TO STITCH

The needle thread tension required is a function of needle thread and the material being sewn. In general, lower looper thread tension should be set as high as possible without causing the needle threads to be pulled too far over the top of the seam and low enough to prevent looper thread breakage.



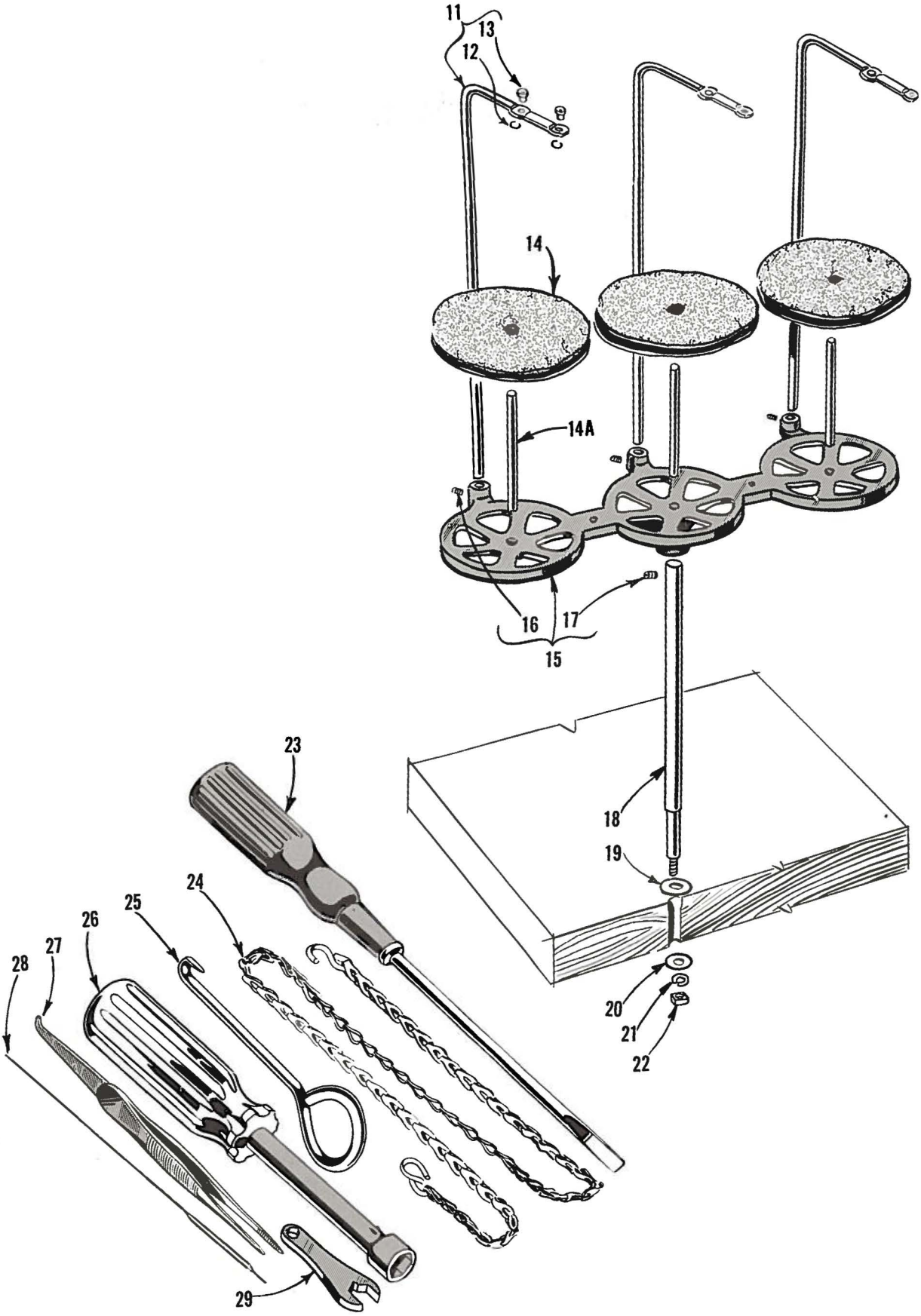
The parts illustrated on the preceding page and described on this page represent the parts used on Style 39500 AC-060, but not used on Styles 39500 A, B, P, or AF.

Parts shown in phantom views, bearing no reference numbers, are common to Styles 39500 A, B, P, and AF and 39500 AC-060.

Use Catalog No. 103 S for all parts not illustrated or described here.

Ref. No.	Part No.	Description	Amt. Req.
1	39552 H	Needle Driving Arm, marked "A"	1
2	22596 E	Screw	1
3	50-774 Blk.	Stop Pin	1
4	154 GDS	Needle (size 029)	2
5	39551 F	Needle Clamp Stud	1
6	51292 F-1	Needle Thread Tension Spring	2
	51292 F-2	Looper Thread Tension Spring	1
7	39592 E	Pad, for 39592 F	1
	39592 E	Pad, for left needle thread only, between inverted tension discs	2
8	39556 J	Presser Arm	1
9	39520 AC	Presser Foot	1
10	39530 R	Chain Shield	1
11	22738	Screw - Chain Shield	1
12	39530 G	Hinge Spring	1
13	22768 B	Screw - Tongue and Spring	1
14	39597 AB	Presser Foot Stitch Tongue, marked "EK"	1
15	22738	Screw - Chip Guard	1
16	39530 P	Presser Foot Chip Guard	1
17	39568 B	Looper Thread Eyelet	1
18	39505 E	Chaining Feed Dog	1
19	39526 AC	Differential Feed Dog	1
20	39505 AC	Main Feed Dog, marked "AM"	1
21	93 A	Screw - Main Feed Dog	1
22	39525 H	Needle Guard, front	1
23	39525 J	Needle Guard, rear	1
24	39528 AC	Throat Plate, marked "AY"	1
25	39508 B	Lower Looper	1
26	39560 A	Upper Spreader	1
27	39578 BB	Chip Guard	1
28	39563 X	Top Cover Needle Thread Eyelet	1
* -	39522 CC	Crankshaft	1
* -	39540 B-30	Differential Feed Driving Eccentric	1
* -	39540 B-60	Main Feed Driving Eccentric	1
* -	39568 R	Frame Looper Thread Guide	1

* Not shown on picture plate, but used on this machine.



THREAD STAND AND MISCELLANEOUS TOOLS

Ref. No.	Part No.	Description	Amt. Req.
11	21113 F	Thread Stand Eyelet and Support Rod	3
12	21114 M	Eyelet Locking Ring	6
13	21114 L	Eyelet	6
14	21104 V	Felt Pads	3
14A	69 S	Spool Pin	3
15	21130 W-3	Cone Support	1
16	22650 CB-4	Screw - Thread Stand Eyelet	3
17	22650 CE-6	Screw - Thread Stand Rod	1
18	21104 AA	Thread Stand Rod	1
19	652 J-24	Washer	1
20	652 J-16	Washer	1
21	WA9 A	Lock Washer	1
22	651 A-16	Nut	1
23	21202	Screwdriver	1
24	421 D-34	Treadle Chain	1
25	21227 BF	Cam Extractor	1
26	21388 AU	Socket Wrench, for 3/8 inch nuts holding feed eccentrics	1
27	660-240	Thread Tweezers	1
28	39599 A	Threading Wire	1
29	116	Wrench, for 9/32 inch nuts	1

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