

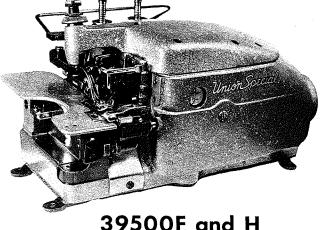


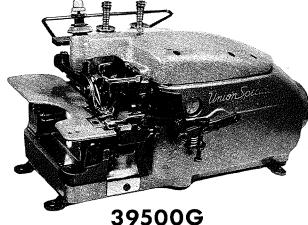
**STYLES** 

39500F

39500G

39500H





**CATALOG** No. 103P

**SECOND** 

**EDITION** 

**CLASS 39500 STREAMLINED** HIGH SPEED OVERSEAMERS

Union Special MACHINE COMPANY

## Catalog No. 103 P (Supplement to Catalog No. 103 S)

INSTRUCTIONS

FOR

ADJUSTING AND OPERATING

LIST OF PARTS

CLASS 39500

Styles

39500 F

39500 G

39500 H

Second Edition

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Union Special
MACHINE COMPANY
INDUSTRIAL SEWING MACHINES
CHICAGO

Printed in U.S.A.

## FOREWORD

The Class 39500 machine is Union Special's latest overedger. New streamlined styling, automatic lubrication, and light running high speed performance are characteristics of these machines. All parts are made by precision methods insuring complete interchangeability.

It is our constant aim to furnish carefully prepared information that will enable the customer to secure all possible advantages from the use of Union Specials. The following pages contain valuable operating and adjusting data, and illustrate and describe the parts for Styles in Class 39500.

Union Special representatives will be found in all manufacturing centers, anxious to cooperate with you to plan and estimate requirements.

Union Special MACHINE COMPANY

**Engineering Department** 

#### IDENTIFICATION OF MACHINE

Each Union Special carries a Style number which is stamped in the 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 F". 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 FZ".

Styles of machines similar in construction are grouped under a Class number, which contains no letters. Example: "Class 39500".

#### APPLICATION OF CATALOG

This catalog is a supplement to Catalog No. 103 S and should be used in conjunction therewith. Only those parts which are used on Styles 39500 F, G and H, and not on Styles 39500 A, B, P or AF, are illustrated and listed at the back of the book.

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

## STYLES OF MACHINES

Single Curved Blade Needle, One Looper, One Spreader, Two Thread, Overseaming Machine. Differential Feed, Trimming Mechanism with Spring Pressed Lower Knife, Automatic Lubricating System.

- 39500 F For blind stitch welting or hemming on light weight rayon, silk, cotton, wool and nylon flat, warp and ribbed knit material used on panties, slips, nightgowns, tee, athletic and polo shirts. Seam specification, 503-EFc-1.
- 39500 G Same as 39500 F, except equipped with knee press operated retractable hemming guide.
- 39500 H Same as 39500 F, except fitted with a long stitch tongue throat plate and a short stitch tongue presser foot which allows maximum spreader point clearance.

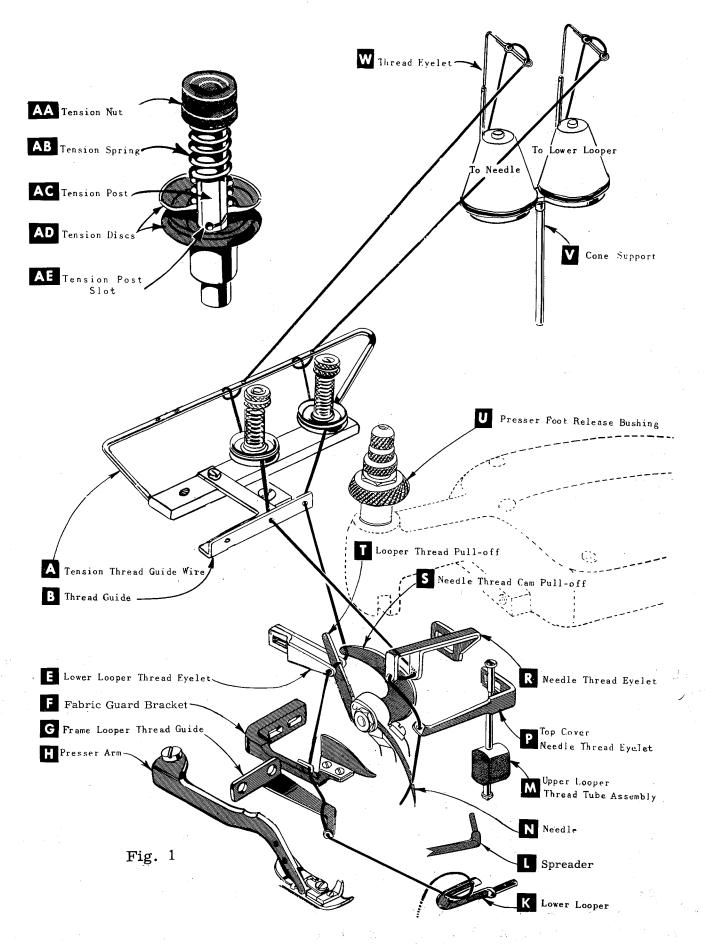
#### **OILING**

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  $100^{\circ}$  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 if required.

Drain plug screw is located at back of machine near bottom edge of base. It is a magnetic screwdesigned 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 a type number and a size number. The type number denotes the kind of shank, point, length, groove, finish and other details. The size number, stamped on needle shank, denotes largest diameter of blade, measured in thousandths of an inch midway between shank and eye. Collectively, type number and size number represent the complete symbol.

These machines use a curved blade needle. Standard needle for Styles 39500 F, G, and H is Type 154 GAS. It is standard length, single grooved, struck groove, spotted, and chromium plated, in sizes 022, 025, 027, 029, 032, 036, 040, 044, 049 and 054.

To have needle orders promptly and accurately filled, the empty package, a sample needle, or type and size number should be forwarded. Use description on label. A complete order would read: "1000 Needles Type 154 GAS, Size 027".

Selection of proper needle size should be determined by the 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 (U, Fig. 1) and swing presser arm (H) out of position. Turn handwheel in operating direction until needle is at its lowest point of travel. Using hexagonal socket wrench No. 21388 AS, 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 (H) to position and re-lock presser foot release bushing (U).

#### THREAD STAND

After thread comes from cone on thread stand (V, Fig. 1), it is brought up through back thread eyelet, then down through front thread eyelet (W). Next, it is threaded through each pair of holes in tension thread guide wire (A), down right hand hole and up through left hand hole. Then thread continues between tension discs (AD) through slot (AE), and on through thread guide (B).

## THREADING

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

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

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

Be sure the threads, as they come from the tension thread guide, are between tension discs (AD) and in diagonal slots (AE) in tension posts (AC).

### TO THREAD LOWER LOOPER

Double end of thread and lead it through both eyes of lower looper thread eyelet (E, Fig. 1) from right to left. Note thread must pass in front of looper thread pull-off (T). Lead thread behind fabric guard (F) and through frame looper thread guide (G). Turn handwheel in operating direction until heel of lower looper (K) 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 THE NEEDLE

Turn handwheel in operating direction until needle (N, Fig. 1) is at its highest position. Insert needle thread from right to left, through both eyes of needle thread eyelet (R), under neck of top cover casting, then down through hole in top cover needle thread eyelet (P). Thread needle from front.

## THREAD TENSION

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

#### PRESSER FOOT PRESSURE

Sufficient 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).

## FEED ECCENTRICS

Feed eccentrics used in this machine have been selected to produce approximately 14 stitches per inch.

It will be noted that the part number of main feed eccentric is No. 39540 B-14 while that of differential feed eccentric is No. 39540 B-8. 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.

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 approximate number of stitches desired. Example: "39540 B-12".

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## ASSEMBLING AND ADJUSTING SEWING PARTS

Before assembling sewing parts, remove cloth plate, fabric guard, chip guard, upper knife assembly, lower knife holder assembly, hemming guide assembly; then follow this suggested sequence.

## SETTING THE NEEDLE

With throat plate in position, needle should center in the front end of needle slot. When needle is at high position, needle point should be set 17/32 inch above throat plate (Fig. 3). Move needle driving arm (A, Fig. 3) by loosening clamp screw (B). Remove throat plate.

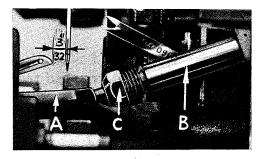
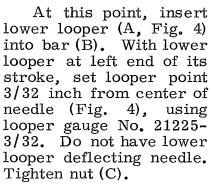


Fig. 4



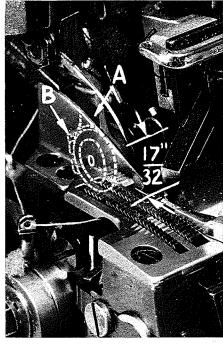


Fig. 3

## SETTING THE REAR NEEDLE GUARD

Set rear needle guard (A, Fig. 5) 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.

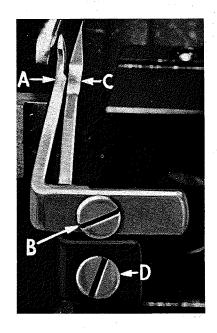


Fig. 5

## 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. 6) until the needle springs forward from rear guard surface another .002 - .004 inch.

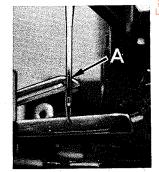


Fig. 6

## SETTING THE FRONT NEEDLE GUARD

Assemble front needle guard (C, Fig. 5). 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 guard and main feed dog.

#### SETTING THE SPREADER

Insert spreader (A, Fig. 7) in its holder. Screw (B, Fig. 7) holds spreader in its holder, and permits spreader to be pushed in or out or turned around its shank. Screw (C, Fig. 7) on collar holds spreader holder in the shaft, and allows holder to be rotated or adjusted laterally.

Preliminary Setting: When spreader is at the right end of its stroke, spreader holder should be set to position spreader shank back of vertical (Fig. 7). Top end of spreader shank should extend about 3/64 inch above holder (Fig. 7).

tween spreader and needle. Reset to lower looper (Fig. 8).

left, the Vee notch of the spreader lower looper, with approximately .002 inch clearance between spreader and lower looper (Fig. 8).

until spreader is at left end of its travel. At this position, the lower point of the spreader should extend about 1/8 inch to the left of the centerline of the needle and should be approximately 3/8 inch above the top of the throat plate (Fig. 9).

Now check setting between spreader

and needle. If needle rubs the back of spreader, pull spreader out of its holder slightly and rotate spreader holder forward a short distance. These same adjustments, in opposite movement, will reduce the clearance be-

As spreader moves from right to should pass just behind the eye of the

Continue turning the handwheel

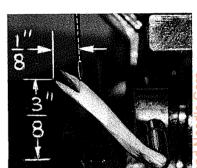


Fig. 7

Fig. 9

Fig. 8

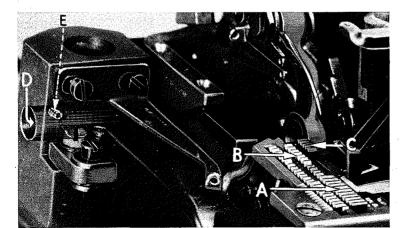


Fig. 10

#### SETTING THE FEED DOGS

Assemble main, differential and chaining feed dogs (A, B, C, Fig. 10).

Feed Dogs should be leveled with throat plate surface by rotating feed tilting adjusting pin (D). This pin raises or lowers the back end of feed bar. Feed dogs should be set level at the time teeth first appear above throat plate. Screw (E) locks feed tilting adjusting pin in place. Now set feed dogs at highest point of travel. Main and differential feed dog teeth set 3/64 inch above throat plate, and chaining feed dog teeth set about flush with surface of throat plate.

## SETTING THE LOWER KNIFE

Replace lower knife holder assembly. In replacing the lower knife holder assembly, tighten screw (A, Fig. 11) so that when the face of the flange on sleeve (B) seats against the throat plate mounting bracket (C) a free lateral motion of the lower knife and holder assembly is obtained when the knife is manually pressed at its upper corner. Lower knife (D) 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 (E) against knife holder shaft.

Set the desired width of trim by measuring from the right edge of the lower knife to the needle, lock the lower knife holder shaft with screw (E).

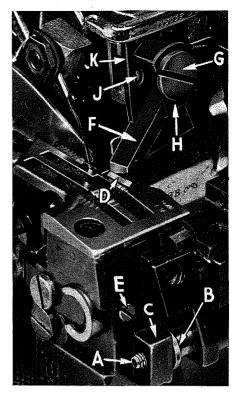


Fig. 11

## SETTING THE UPPER KNIFE

Replace upper knife assembly. Clamp upper knife (F, Fig. 11) in position, setting screw (G) to hold clamp (H) 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.

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

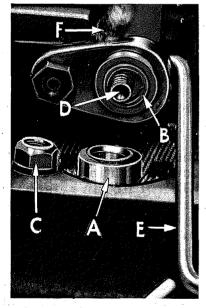


Fig. 12

## SETTING THE STITCH LENGTH

Length of stitch is determined by the combination of feed eccentrics used. Outer (left) eccentric (A, Fig. 12) 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 handwheel back and forth slightly during extraction.

If eccentrics are unusually tight fitting, in addition to removing nut (C, Fig. 13) from shaft (D), it may be helpful to remove nut (G) and feed driving connection (H). Then continue as originally suggested.

## 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.

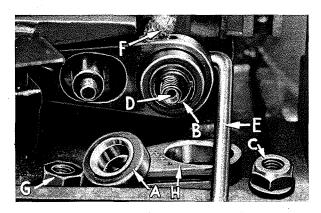


Fig. 13

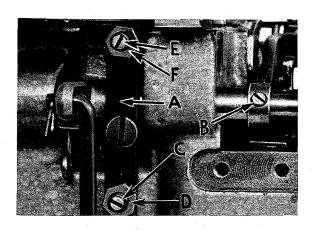


Fig. 14

Foot lifter lever arm (A, Fig. 14) 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 holder, loosen presser foot hinge screw.

Adjust lifter lever stop screw (C) so that presser foot can be raised no higher than upper looper will permit; then lock nut (D). There should be from 1/16 to 1/8 inch free motion of foot lifter lever before presser foot begins to rise. This adjustment should be made with screw (E), and locked with nut (F).

Reassemble chip guard, fabric guard, cloth plate.

## NEEDLE THREAD CONTROL

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 (R, Fig. 1) so that needle thread cam pull-off (S) just contacts needle thread.

#### LOWER LOOPER THREAD CONTROL

With material under presser foot, set lower looper thread eyelet (E, Fig. 1) back and down far enough so thread is a little slack when spreader reaches its extreme left position. Looper thread eyelet (E) should be about horizontal.

Frame looper thread guide (G) should be set with its left hand eyelet approximately 1/8 inch right of heel eyelet of looper (K) at the time lower looper is at extreme left end of its travel.

#### THREAD TENSIONS

Before proceeding, balance both tensions to give a normal appearing stitch. Moderate change in these tensions will not markedly effect the purl.

#### SPECIAL ADJUSTMENTS

SKIPPING: For occasional skipping, check and/or adjust as outlined below:

- 1. Recheck lower looper needle setting. See "Setting the Needle", page
- 2. Recheck spreader lower looper crossing. See "Setting the Spreader", page
- 3. Check clearance between needle and spreader. See that spreader moves far enough left past needle.

Settings 1 and 2 should be made quite carefully. If it can be determined by appearance that skip is definitely not a needle loop skip, reposition looper thread eyelet (E, Fig. 1) by lowering it slightly and bringing eyelet holes in close to bend in looper thread pull-off (T). After this change, increase looper thread tension as much as possible without distorting stitch.

CAUTION: Looper thread must, as before, be slightly slack as spreader reaches its extreme left position, or stitch will appear tight on top side.

## STARTING TO OPERATE

Be sure machine is threaded according to threading diagram (Fig. 1, page 5).

With thread tensions light, set looper thread eyelet (E) about horizontal and in the middle of its front to back location.

Operate machine slowly, with presser foot in place; make sure chain forms and moves off tongue freely.

# SETTING THE HEMMING GUIDE SUPPORT BRACKET

Assemble the hemming guide support bracket onto the lower knife support bracket by means of screw (A, Fig. 15). With the knurled adjusting screw (B), set the edge guide (C) so that the left side of its tip is even with and parallel to the right side of the right feed slot in the throat plate.

When the edge guide tip is in this position, the front or leading edge should be slightly to the right of parallel. This adjustment can be made by positioning the stop screw (Ref. 47, page 14) located towards the front of the hinge block and edge guide support bracket (D).

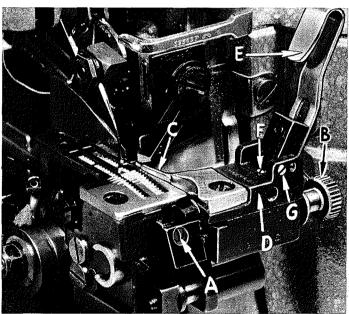


Fig. 15

Under normal conditions, the edge guide is spring pressed to compensate for the differences in material thickness. For example, as in going over seams. The amount of movement and the pressure applied to the edge guide tip is controlled by adjusting the screw (Ref. 45, page 14) which presses against the spring (Ref. 46, page 14) located in the hinge block and edge guide support bracket (D). Removing this spring and turning the screw all the way out against the edge guide prevents movement of the edge guide.

## FOR THE 39500 G ONLY

Mount the retractable edge guide lever bracket (A, Fig. 16) onto the casting with

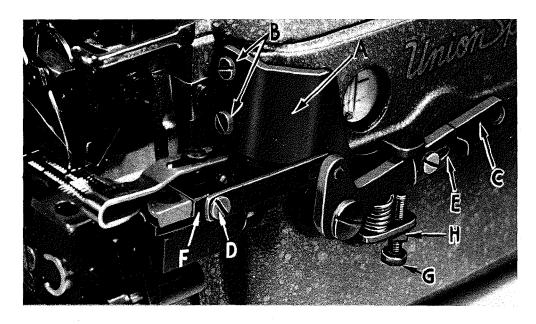


Fig. 16

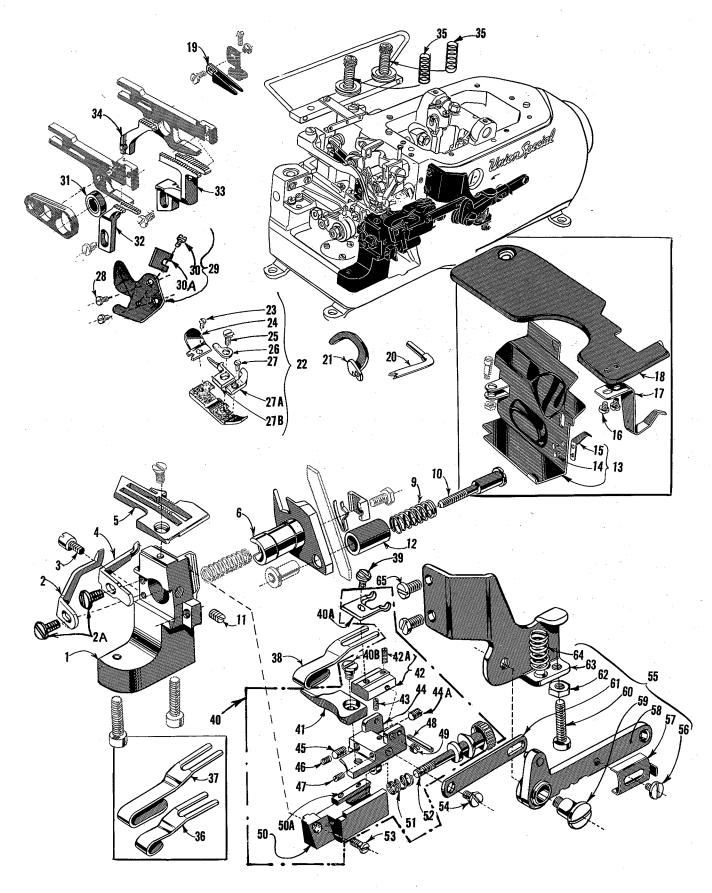
screws (B). Attach the knee press chain to the lever arm (C) and the lever arm to the hemming guide support bracket with screw (D). The adjustable stop lever slide (E) should be positioned to the extreme left when in normal operation. The slide is moved to the right as shown in the illustration, only when making repairs on garments.

## FINAL ADJUSTMENT OF HEMMING GUIDE

Adjust the edge guide (C, Fig. 15) by turning the knurled adjusting screw (B) so that the stitches are located in the folded edge, yet do not show on the face of the fabric. Adjust the overhanging guide (E) so that the space between its guiding edge and the edge guide corresponds with the thickness of the material to be hemmed. Adjust the stop screw (F) for the overhanging guide so that the tip of the overhanging guide is located at the center of the edge guide vertically. If desired, the overhanging guide can be locked into position by tightening the locking screw (G) located in the hinge block and edge guide support bracket (D).

## FOR THE 39500 G ONLY

Adjust the amount of retraction of the edge guide bracket (F, Fig. 16) by positioning the adjusting stop screw (G). The position of the screw will depend on the thickness of the seam to be crossed. The locking nut (H) should then be tightened into place.



The parts illustrated on the preceding page and described on this page represent the parts that are used on Styles  $39500 \, \text{F}$ , G and H, but are not used on Styles  $39500 \, \text{A}$ , B, P or AF.

Unless otherwise specified in the description, the parts are used on 39500 F, G and H. Those parts shown in phantom views and bearing no reference numbers are common to Styles 39500 A, B, F, G, H, P and AF.

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

Ref. No.	Part No.	Description	Amt. Req.
1	39580 BA	Throat Plate Support Bracket	. 1
$\overline{2}$	39525 D	Needle Guard, front	$\cdot$ $\hat{1}$
2A	90	Screw	. 2
3	22585 G	Screw	• 1
4	39525 E	Needle Guard, rear	1
5	39524 G 39524 D	Throat Plate, marked "AF", for Styles 39500 F and G (Short stitch tongue) Throat Plate, marked "AM", for Style 39500 H (long stitch tongue)	. 1
6	39550 H	LOWER Knife Holder	- 1
9	39550 J	Knife Pressure Equalizing SpringAdjusting Screw	. 1
10	22559 H	Adjusting Screw	· 1
11	88 B	Screwe	. 1
12	39550 K	Spring Cover	. 1
13	39582 G	Side Cover	. 1
14 15	39582 J 39582 H	Spring	
16	22513	ScrewScrew	
17	39532 D	Latch Spring	. 1
18	39501 G	Cloth Plate	- 1
19	39568 B	Looper Thread Eyelet	. 1
20	39560 A	Spreader, marked "E"	1
21	39563 J	Needle Thread Cam Pull-off	. 1
22	39520 G 39520 H	Presser Foot, for Styles 39500 F and G (long stitch tongue)	. 1
23	22738	Presser Foot, for Style 39500 H (short stitch tongue)	. 1
24	39530 E	Chain Shield	. î
25	22768 B	Screw	. 1
26	39530	Hinge Spring	· 1
27	22738	Screw	1
27A	39530 B	Chip Guard	1
27B	39597 F 39597 A	Stitch Tongue, marked "DV", for Style 39520 G	· 1
28	605	Screw	. 2
29	39556 M	Chain Cutting Knife, complete	. 1
30	22798	Screw	. 1
30A	39556 L	Chain Cutting Knife	· 1
31	39540 B-8	Differential Feed Driving Eccentric	1
2.0	39540 B-14	Main Feed Driving Eccentric	1
32 33	39505 F 39526 H	Differential Feed Dog	. 1
34	39505 G	Chaining Feed Dog. marked "S", for Styles 39500 F and G	. 1
	39505 H	Chaining Feed Dog, marked "U", for Style 39500 H Needle and Looper Thread Tension Spring	. 1
35	51292 F-4	Needle and Looper Thread Tension Spring	. 2
36	39589 H-1/2	Overhanging Guide, for 1/2 inch hem	· 1
37	39589 H-1	Overhanging Guide, for 1 inch hemOverhanging Guide, for 3/4 inch hem	1
38 39	39589 H-3/4 98 A	Screw	. 1
40	29481 F	Hemming Guide Assembly	. 1
40A	39589 U	Hemming Guide Spring	. 1
40B	22760 A	Screw	· 1
41	39503 G	Edge Guide	1
42	39589 F	Overhanging Guide Hinge	1
42A 43	77 Q 79077	Screw	. 1
44	39589 G	Hinge Block and Edge Guide Support	. 1
44A	22565 C	Screw	. 1
45	22565 C	Screw	
46	39568 J	Edge Guide Tension Spring	
47	79077	Screw	1
48 49	22799 E	Screw	1
50	22743 39589 E	Overhanging Guide Base	. 1
50A	22738	Screw	. 2
51	39589 J	Spring	. 1
52	22873 B	Adjusting Screw	· 1
53	22593	Screw	. 1
54	22760 A	Screw, for No. 29481 E	1
55 5.0	29481 E	Operating Lever Assembly, for Style 39500 G	1
56 57	22726 A 39589 N	Operating Lever Sliding Member	. 1
58	39589 K	Operating Lever	1
59	22557 D	Screw	. 1
60	22874	Screw	1
61	39589 L	Operating Lever Link	1
62	9937	Nut	1
63	39589 M	Operating Lever Bracket	1
64 65	36279 B 22569 C	Screw for No. 29481 E	. 2
-	39570 L	Upper Knife (not illustrated)	. 1
-	39594 P	Oil Collector Plate (not illustrated)	1





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