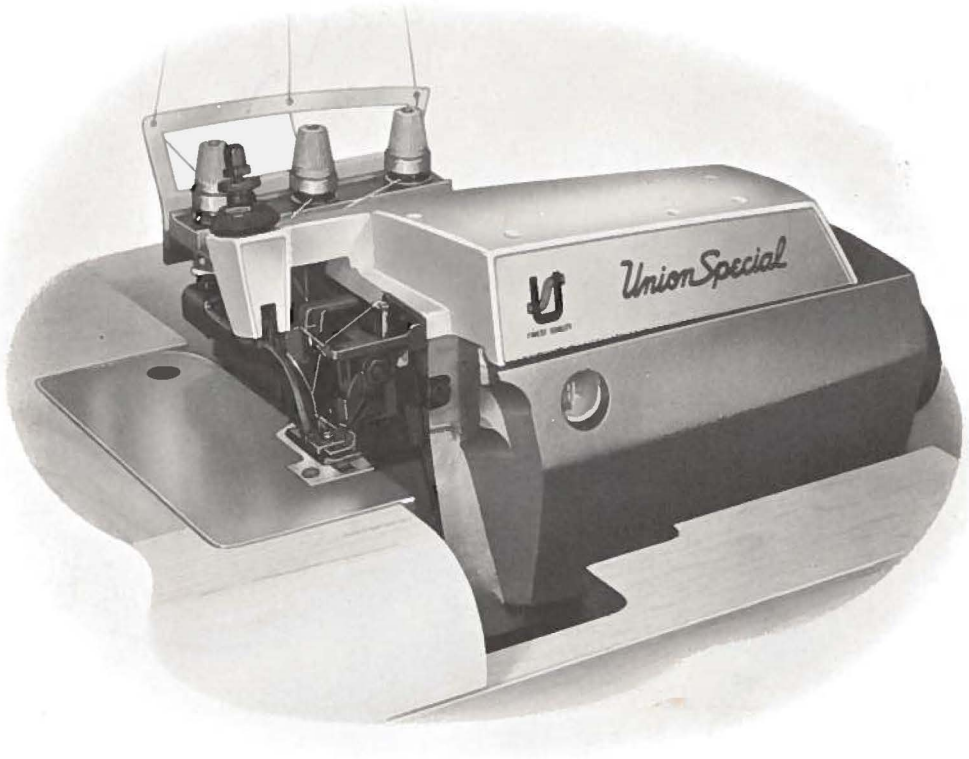
FINEST QUALITY

Union Special®
LEWIS • COLUMBIA

INDUSTRIAL SEWING MACHINES

STYLE
39500 MA



CLASS 39500

CATALOG
No.
103 MA

HI-STYLED HIGH SPEED SINGLE NEEDLE DIFFERENTIAL FEED TOE CLOSING MACHINES

Union Special MACHINE COMPANY
CHICAGO

Catalog No. 103 MA
(Supplement to Catalog No. 103 FA)

INSTRUCTIONS

FOR

ADJUSTING AND OPERATING

LIST OF PARTS

CLASS 39500

Style
39500 MA

First Edition

Union Special
MACHINE COMPANY
INDUSTRIAL SEWING MACHINES
CHICAGO

Printed in U.S.A.

February, 1973

IDENTIFICATION OF MACHINE

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 MA". 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 MAZ".

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 is a supplement to Catalog No. 103 FA and should be used in conjunction therewith. Only those parts which are used on Style 39500 MA, and not on Style 39500 GS are illustrated and listed at the back of the book.

This catalog applies specifically to the standard Style of machine 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 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

Hi-Styled 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 MA Light duty machine, for toe closing on women's seamless hosiery. Seam specification 505-EFe-1 inverted. Standard seam width 1/16 to 3/32 inch depending on material. Stitch range 15-100 per inch. Cam adjusted main and differential feeds. 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.

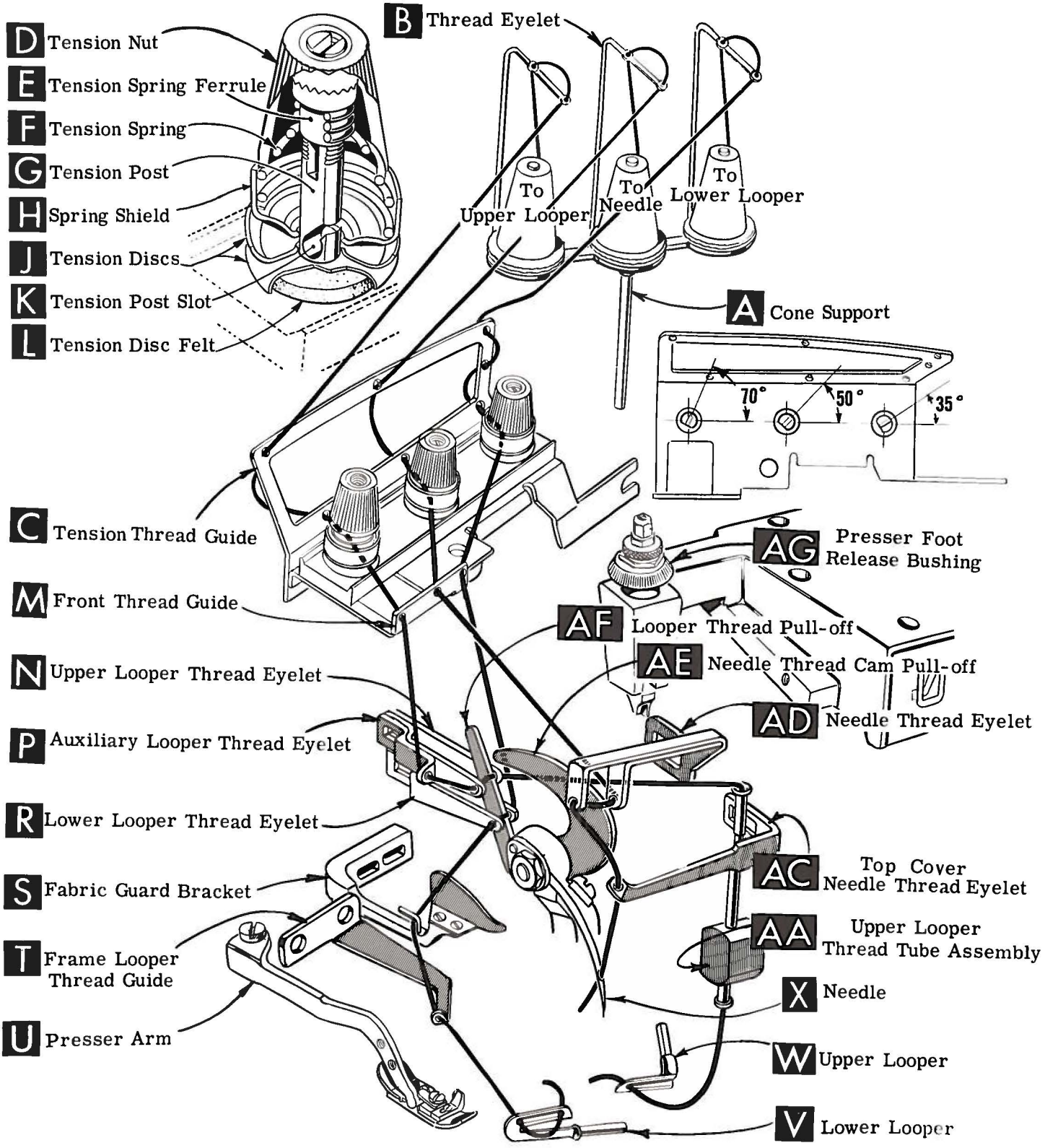


Fig. 1

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 the 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 which is given on the label of all needles packaged and sold by Union Special.

This machine uses a curved blade needle. Standard needle for Style 39500 MA is Type 154 GAS. It is standard length, single grooved, struck groove, spotted and chromium plated, available in sizes 022, 025, 027, 029, 032, 036, 040, 044,049, 054, and 060.

To have needle orders promptly and accurately filled, an 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 is 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 (AG, Fig. 1) 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 and 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 and re-lock presser foot release bushing (AG).

THREAD STAND

After thread comes from cones on cone support (A, Fig. 1) it is brought up through the back hole of thread eyelet (B), then down through the front hole of thread eyelet. Next it is threaded through the upper hole of tension thread guide (C) from front to back and then through the lower hole from back to front.

NOTE: The lower looper thread is threaded through the tension thread guide (C), first through the upper hole from back to front, second through the middle hole from 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).

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 Style 39500 MA to follow recommended sequence of threading lower looper first, upper looper second, and needle third.

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 the threads, as they come from the tension thread guide (C) are between tension discs (J) and in tension post slot (K) in tension post (G). The tension posts should be positioned so the tension post slot will be at the approximate angle for the different threads as indicated in Fig. 1.

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) 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, Fig. 1). 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 the thread under neck of top cover casting and down through thread tube assembly (AA). Pull thread out bottom of tube, push tube down, and then insert thread through upper looper eye from front to back.

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

TO THREAD THE NEEDLE

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.

THREAD TENSION

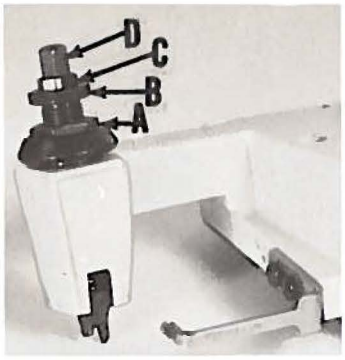


Fig. 2

The amount of tension on needle and looper threads is regulated by the tension nuts (D, Fig. 1). 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).

FEED ECCENTRICS

Feed eccentrics used in Style 39500 MA machines have been selected to produce approximately 30 stitches per inch. It will be noted that the part number of main feed eccentric is No. 39540 B-30 and that of differential feed eccentric is also No. 39540 B-30. 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, -50, -60, -70, -100. 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-30".

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:

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). To align needle or set the height above the throat plate, move needle driving arm (B, Fig. 3) by loosening clamp screw (C). After needle has been properly set tighten clamp screw (C) and remove throat plate.

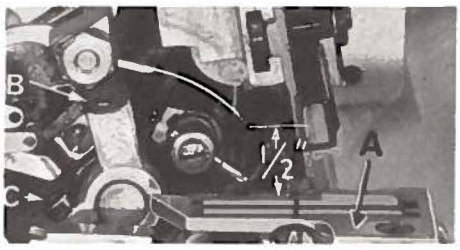


Fig. 3

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.

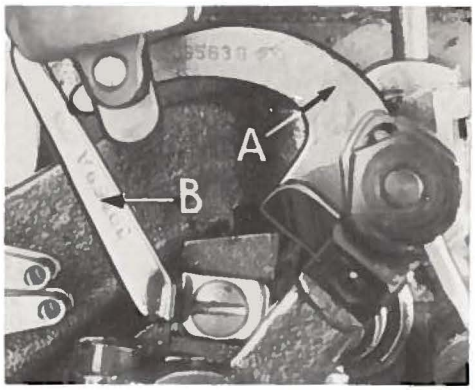


Fig. 4

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

Now assemble differential (front) feed dog.

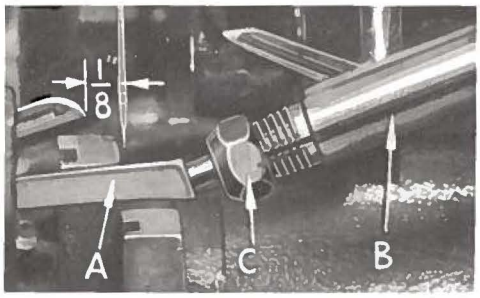


Fig. 5

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.

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.

SETTING THE FRONT NEEDLE GUARD

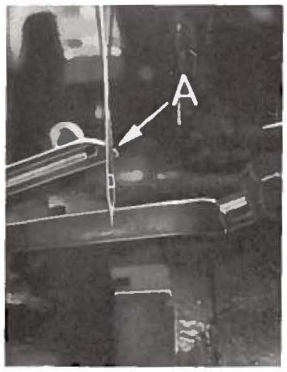


Fig. 7

Assemble front needle guard (C, Fig. 6). When lower looper is springing needle off rear needle guard, 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.

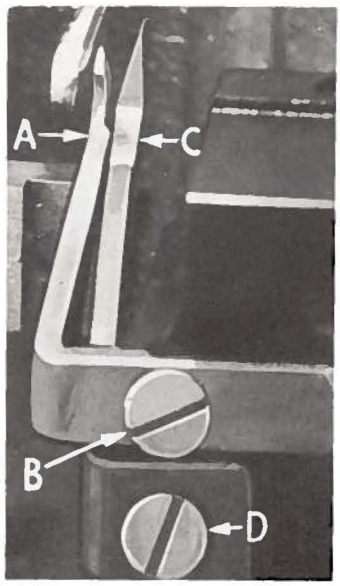


Fig. 6

SETTING THE UPPER LOOPER

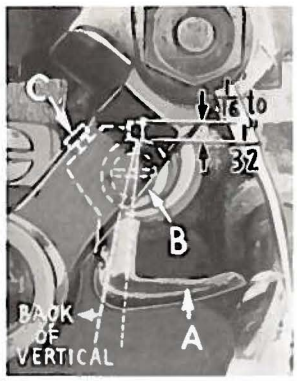


Fig. 8

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) on 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).

When the upper looper is at the right end of its stroke, upper looper holder should be set to position upper looper shank back of vertical (Fig. 8).

Be sure, 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

Next, turn handwheel until looper is at the left end of its travel; check dimensions of upper looper point with respect to needle and throat plate (Fig. 10). If resetting is necessary, do it by moving the upper looper holder (A, Fig. 10).

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.

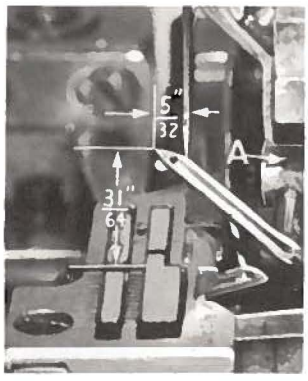


Fig. 10

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).

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.

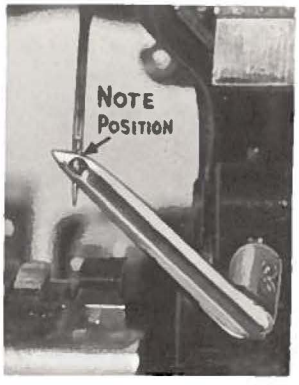


Fig. 11

SETTING THE FEED DOGS

Now assemble main (back) feed dog.

Set the feed dogs (A, B, Fig. 12) so the top surfaces of feed dogs 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.

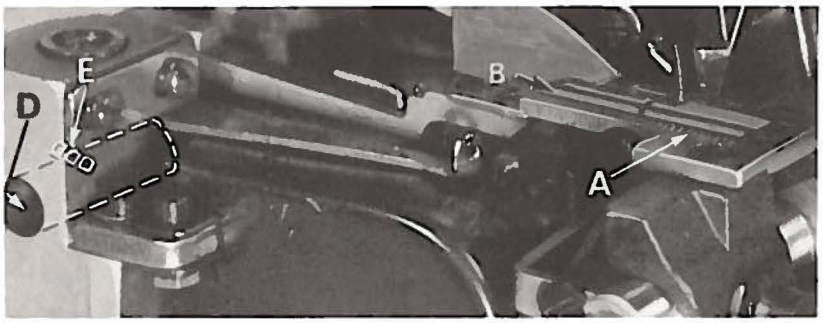


Fig. 12

The feed dogs should be set level at the time the top surfaces first appear above the throat plate. Screw (E) locks feed tilting adjusting pin in place. Now set the main and differential feed dogs so that the top surface of feed dog will rise about 3/64 inch above throat plate.

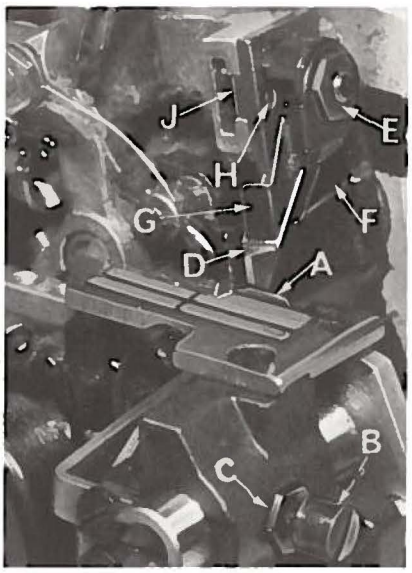


Fig. 13

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.

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 (D) 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 (H) should be tightened to lock upper knife holding block (J) in place. This will simplify resetting when upper knife is replaced.

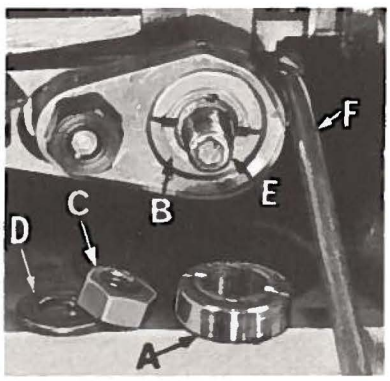


Fig. 14

SETTING THE STITCH LENGTH

Length of stitch is determined by the combination of feed eccentrics used. Outer (left) eccentric (A, Fig. 14)

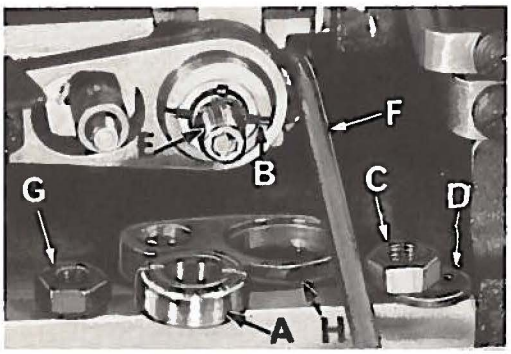


Fig. 15

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.

To change feed eccentrics, remove nut (C) and washer (D) from end of shaft (E). Turn handwheel in operating direction until key slot in eccentric is toward the front. Using hooked eccentric extractor (F), 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) and washer (D, Fig. 15) from shaft (E), it may be helpful to remove nut (D) and feed driving connection (H). Then continue as originally suggested.

SETTING THE PRESSER FOOT

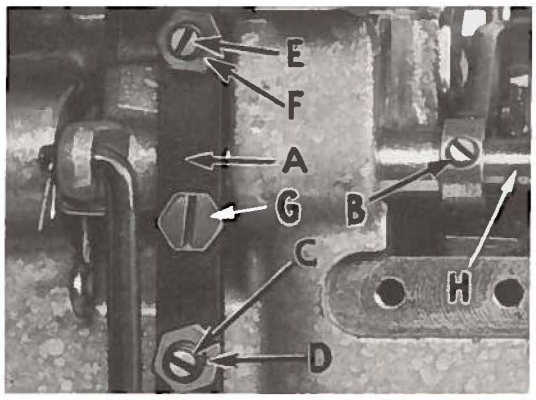


Fig. 16

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.

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 with 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

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

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.

STARTING TO OPERATE (Continued)

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

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. 1) farther to the rear. With needle at the bottom of its stroke, position needle thread eyelet (AD), so that needle thread cam-off (AE) just contacts the needle thread.

LOWER LOOPER THREAD CONTROL

Set lower looper thread eyelet (R, Fig. 1) 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 heel eyelet, when lower looper is at the left end of its stroke.

UPPER LOOPER THREAD CONTROL

With material under presser foot, set upper looper thread eyelet (N, Fig. 1) 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

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.

TERMS

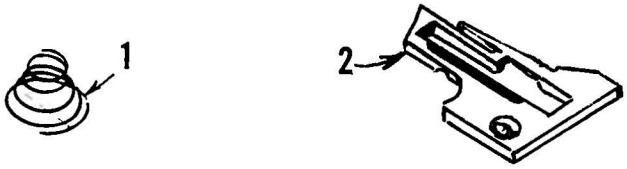
Prices are net cash and subject to change without notice. All shipments are forwarded f. o. b. shipping point. Parcel Post shipments are insured unless otherwise directed. A charge is made to cover postage and insurance.

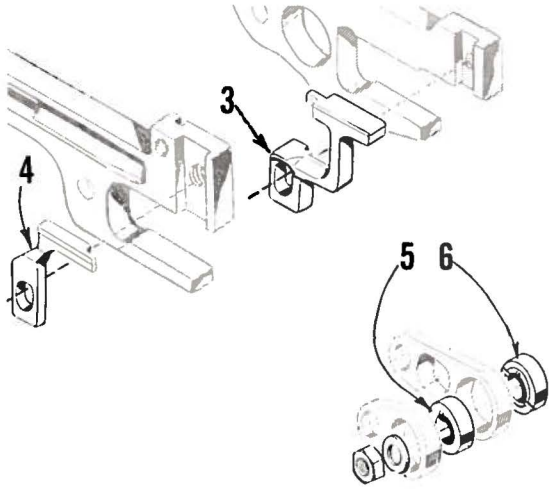
The parts illustrated and described below represent the parts that are used on Style 39500 MA, but are not used on Style 39500 GS.

Those parts shown in phantom views and bearing no reference numbers are common to Styles 39500 GS and MA.

Use Catalog No. 103 FA (Style 39500 GS) for all parts not illustrated or described in this catalog.

Ref. No.	Part No.	Description	Amt. Req.
1	39592 AR-5	Looper Thread Tension Spring	2
	39592 AR-4	Needle Thread Tension Spring	1
2	39524 AV	Throat Plate, marked "BZ"	1
3	39526 AB	Differential Feed Dog, vulcanized rubber feed surface	1
4	39505 AB	Main Feed Dog, marked "AG", vulcanized rubber feed surface	1
5	39540 B-30	Main Feed Drive Eccentric	1
6	39540 B-30	Differential Feed Drive Eccentric	1





Helpful, authoritative information on the most efficient types of equipment for making virtually any machine sewed article is available from Union Special's Sales Promotion Department. Among the many interesting, illustrated bulletins that are available without obligation are the following:

No. 240, "Men's, Women's, Children's Footwear"
No. 249, "Rainwear"
No. 250, "Men's Dress Shirts"
No. 251, "Service Shirts and Pants"
No. 252, "Men's Shorts and Pajamas"
No. 253, "Overalls, Coveralls, and Dungarees"
No. 254, "Men's Knit Underwear"
No. 256, "Knit Outerwear"
No. 259, "Men's Sports Shirts"
No. 260, "Work Gloves"
No. 262, "Cotton, Burlap, Jute, and Multiwall Paper Bags"
No. 263, "Men's Clothing"
No. 264, "Men's Women's, Children's Jackets"
No. 265, "Women's Wear"
No. 266, "Women's Wear And High Fashion"
No. 267, "Corsets, Girdles, Brassieres"
No. 268, "Children's Wear"
No. 269, "Mattresses, Slip Covers, Furniture Upholstery"
No. 271, "Awnings, Canopies, Tents, Tarps"
No. 273, "Curtains & Drapes"
No. 610, "Klipp-it"
No. 710, "MCS ForMation Unit"
No. 730, "MCS Automatic Dual Underfront Shirt Hemmer"
No. 740, "MCS Automatic Rib-Knit Cuff Machine"
No. 750, "Fusing Presses"
No. 1100, "Lewis Blindstitch, Chainstitch, Lockstitch, Machines"
No. 1105, "Button Sewers—Ticket Tackers"
"Columbia Blindstitch, Saddle Stitch, and Tie Closing Machines"
No. 1500, "Alteration Department Machines"

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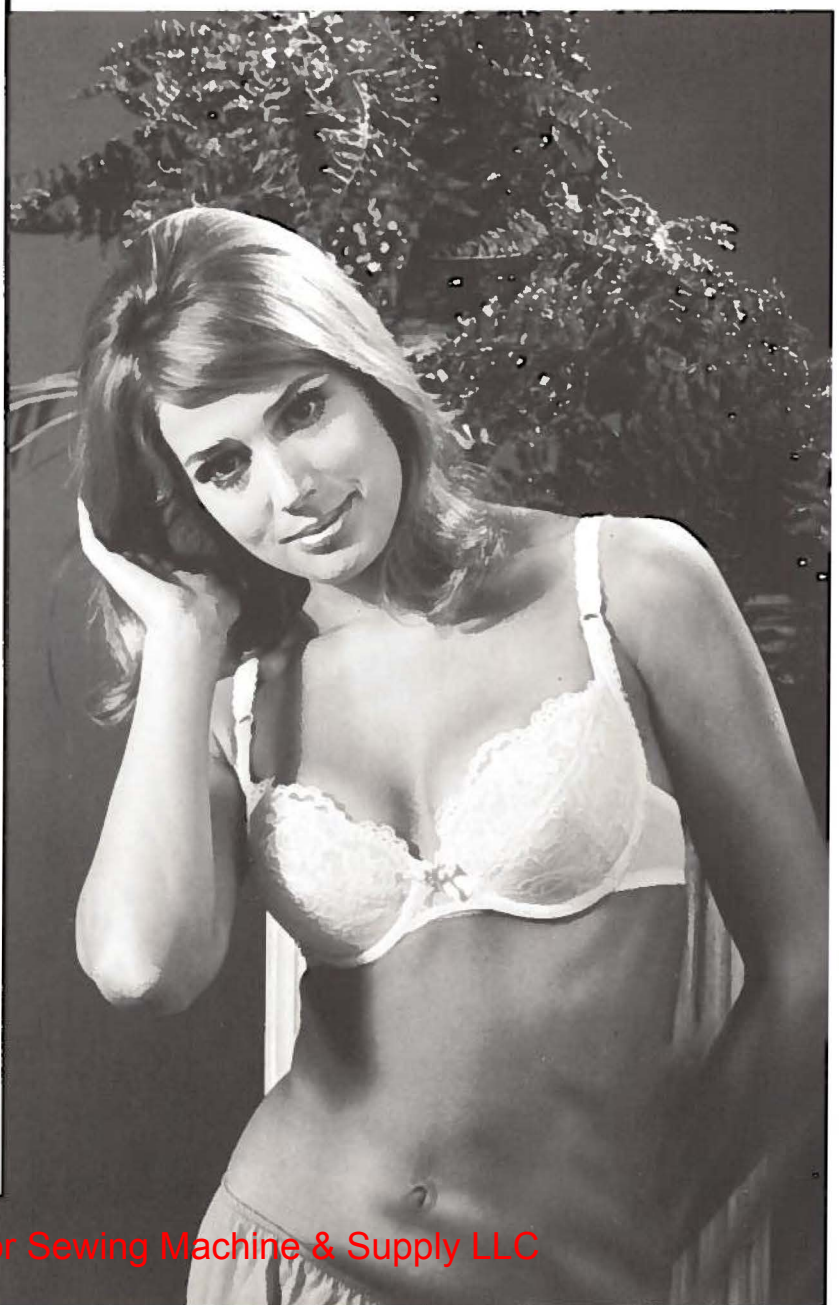

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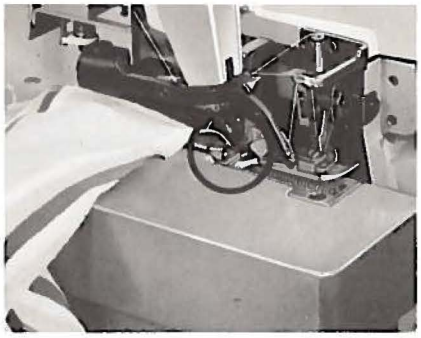
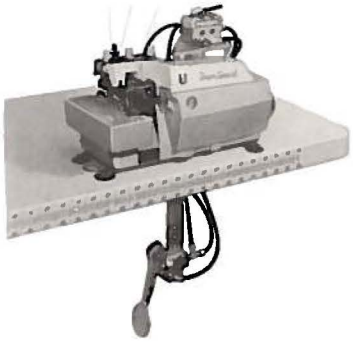
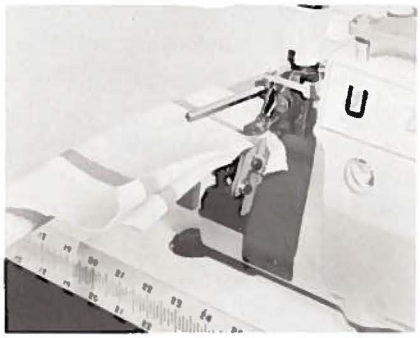


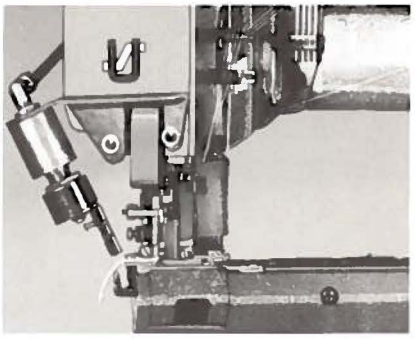
PNEUMATIC CHAIN-CUTTER—for use on conventional Class 39500 and 39600 is a durable scissor-action mechanism that makes a clean positive cut. Style 2899 A-1



PNEUMATIC FOOT LIFTER—The air-operated foot lifter for use on Class 39500 machines allows the operator to raise the foot simply by knee-touching an actuating switch.

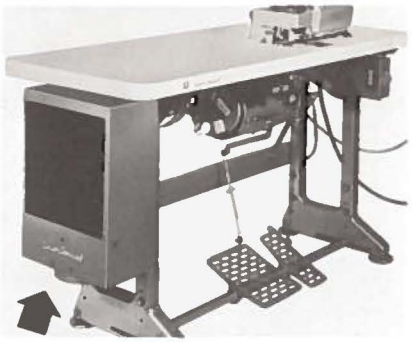


AIR FABRIC UNCURLER—This unit, designed for Class 39500 machines, uses air jets to remove curls from top and bottom plies of flat knit materials as fabric passes through sewing area. Style 2899 B-1

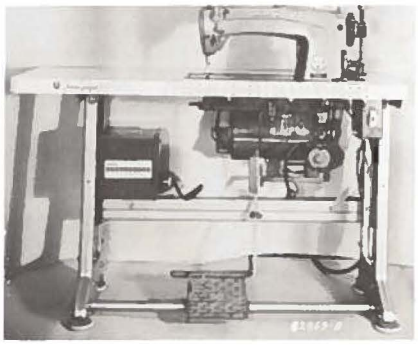


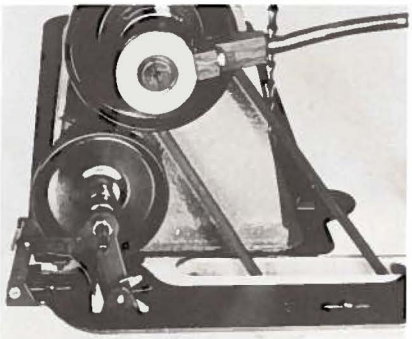
CHAIN CUTTER—The above photo shows the small pneumatic chain cutter that is available for installation as an accessory unit on Class 36200 Flatseamers. Style 2899A-6

KNIFE GRINDER sharpens straight or angle type knives, is simple and easy to operate, eliminates defective garments caused by dull knives.



HEAT DISPELLER—Union Special's auxiliary unit (arrow) is an effective means for reducing oil temperature where heavy duty service requires it. Style 2899 E-1





AMCO ELECTRONIC NEEDLE POSITIONERS eliminate the necessity of reaching for the handwheel to move the needle up or down . . . this allows the operator to keep both hands on the work, insuring better control, uniform quality and increased production.

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