



Union Special®

LEWIS • COLUMBIA

INDUSTRIAL
SEWING
MACHINES

QUALITY

Handwritten signature/initials

CLASS
61100

LIST OF PARTS

FOR STYLES

61100 A

61100 B

61100 C

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CATALOG
NO.
113 L

Union Special MACHINE COMPANY

CHICAGO

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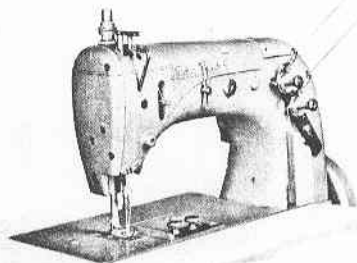
EDIÇÃO
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DM - ORIGINAL

INDUSTRIAL SEWING MACHINES

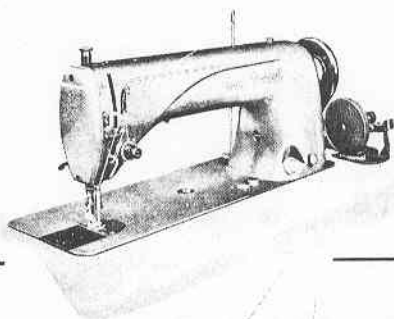
...for Every Purpose!

Job requirements vary — that's why Union Special builds a wide variety of specially designed sewing machines. It is also the reason why Union Special field representatives make a careful study of requirements before giving you detailed recommendations on the kind of equipment to install. Plants equipped with modern, high speed Union Specials have an important advantage. Union Special machines are built to do the job faster . . . better . . . cheaper, and they stay on the job with minimum time out for repairs. You're ahead when you use Union Special.



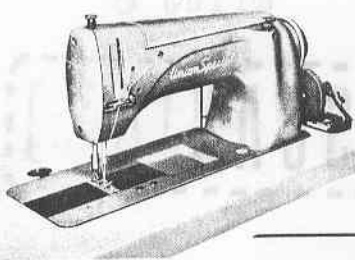
50000 SERIES MACHINES

The thousands of manufacturers using Union Special's new 50000 SERIES machines are finding these ultra-modern, streamlined models to be invaluable aids in cutting costs of operations and boosting production of a wide variety of products. Each of the many machines in the improved 50000 SERIES is specially designed to do a specific job efficiently, quickly, and economically!



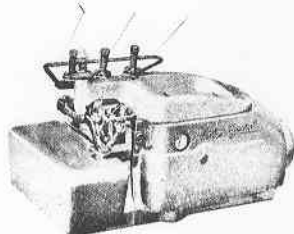
THE 61400 LOCKSTITCH

Never before has a general purpose Lockstitch machine been so thoroughly engineered for handling modern industrial sewing requirements! And never has a machine offered more than the new Union Special SIXTY-ONE-FOUR — a superior machine for light or heavy weight work . . . for short runs as well as long . . . for tacking and back stitching . . . for curved seams and straight runs,



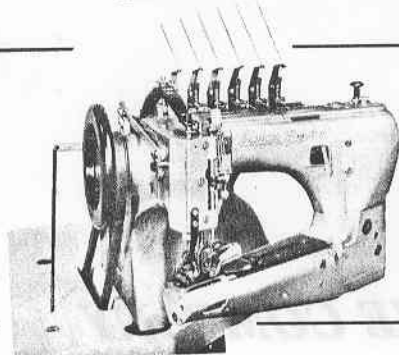
NEEDLE FEED LOCKSTITCH MACHINES

Latest improvements in engineering, manufacturing methods, and materials have been combined in Union Special Class 61800 and Class 62200 needle feed Lockstitch machines providing operators with smooth, streamlined, light-running machines that reduce fatigue and strain. It's no wonder that manufacturers in plants throughout the country are praising the superior performance of these ultra-modern machines!



THE NEW CLASS 39500 OVEREDGER

This new development antiquates every machine presently on the market for use where a curved needle machine is recommended. From its handsome, dynamically functional, modern design to its innermost mechanism, the THIRTY-NINE-FIVE has been produced to accelerate quicker . . . run faster . . . operate more smoothly and quietly . . . with less maintenance . . . and yield a greater profit than any other like equipment available to users today.



35700-35800 FEED-OFF-THE-ARM MACHINES

Union Special's popular feed-off-the-arm felling machines are light running, smooth operating machines that offer great advantages: sewing head of the latest type, new presser bar which practically eliminates feed marking, and presser foot which will lift at the lightest touch. Faster felling is certain with Union Special Class 35700-35800 feed-off-the-arm machines.

LIST OF PARTS

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

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Union Special
MACHINE COMPANY
INDUSTRIAL SEWING MACHINES
CHICAGO

September, 1966

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 61100 A". 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: "61100 AZ".

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: "61100".

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 machines in Class 61100. All references to direction, such as left and right, front and back, etc., are taken from the operator's position while seated at the machine. Operating direction of handwheel is toward the operator.

STYLES OF MACHINES IN CLASS 61100

61100 A Streamlined, Single Needle Basting Machine, Taupe Finish, Push Button Stitch Regulator, Visible Stitch Indicator, Automatic Lubrication of Lower Mechanism, for Light and Medium Weight Material, such as Basting Pockets, Pocket Welts, and Pocket Flaps. Stitch Type 101.

61100 B Same as 61100 A, except for Heavy Weight Material, such as Coats, Suits, Topcoats, Overcoats, Ladies' Coats and similar Garments. Stitch Type 101.

61100 C Same as 61100 A, except equipped with Tape Reel for Taping Hems on Skirts, Dresses, Ladies' Coats, etc. Seam Specification 101 LSa-1 (inverted).

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 the largest diameter of the blade measured in thousandths of an inch midway between the shank and the eye. Collectively, type number and size number represent the complete symbol.

Standard needle for Styles 61100 A and 61100 C is Type 113 GS. It is of extra short length, double groove, struck groove, spiral groove, ball eye, spotted, chromium plated, and is available in sizes 029, 032, 036, 040, 044, 049, 054.

Standard needle for Style 61100 B is Type 133 GS. It is of short length, double groove, struck groove, spiral groove, ball eye, spotted, chromium plated, and is available in sizes 032, 036, 040, 044, 049, 054.

To have needle orders promptly and accurately filled, the empty package, a sample needle, or type and size number should be given. See label on package. A complete order should read: "1000 Needles, Type 113 GS, Size 040".

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

For best results, use only genuine Union Special needles in the operation of this machine. They are packaged under our brand name, *Union Special*, which is backed by a reputation for producing highest quality needles for more than three-quarters of a century.

IDENTIFYING PARTS

Where the construction permits, each part is stamped with its part number. On some smaller parts, and those where the construction does not permit, an identification letter is stamped to distinguish the part from similar ones.

All part numbers represent the same part, regardless of the catalog in which they appear.

TERMS

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

LUBRICATION

CAUTION!

The oil has been drained from the looper drive eccentric and main reservoirs before shipment and these reservoirs must be filled before starting to operate. Lubricate machine thoroughly in accordance with instructions and run slowly for several minutes to distribute the oil to the various parts. Full speed operation can then be expected without damage.

RECOMMENDED OILS

Use a straight mineral oil of a Saybolt viscosity of 200 to 250 seconds at 100° Fahrenheit in both reservoirs. This is equivalent to Union Special oil specification No. 83.

Oils conforming to specification No. 83, may also be used in the manually oiled places.

With needle bar at top of its stroke, oil holes (A & B, Fig. 1) in top of machine twice daily. Both reservoirs are filled through oil cup "C" and the supply should be replenished if required. The oil level should be checked from time to time and kept between the lines on gauge "D".

In order to determine if the oil tube from the main reservoir to the looper drive eccentric reservoir is functioning, check the oil level by tilting machine back against the rest pin and remove screw "E" (Fig. 2).

CAUTION!

Do not use a compounded oil in the reservoirs as these oils separate and froth.

Lubrication of the mechanism below the bed plate is automatically accomplished through the feed driving shaft which is tubular. Oil is introduced into the shaft at the gear end by means of an oil distributing plate (A, Fig. 3) which is secured to the large gear case cover (B) by means of two screws (C) and retaining block (D).

Should it ever become necessary to remove any of the parts from the gear case, it is imperative that the adjustment of the oil distributing plate be checked very carefully. This can be done by removing the large plug screw at right end of the gear housing and looking through the hole. The low point of the oil distributing plate must be even with or slightly below the center of the shaft (E) and just touching it. This is a very important adjustment, as the functioning of the automatic lubrication of the lower part of the machine depends upon it.

IDENTIFYING PARTS

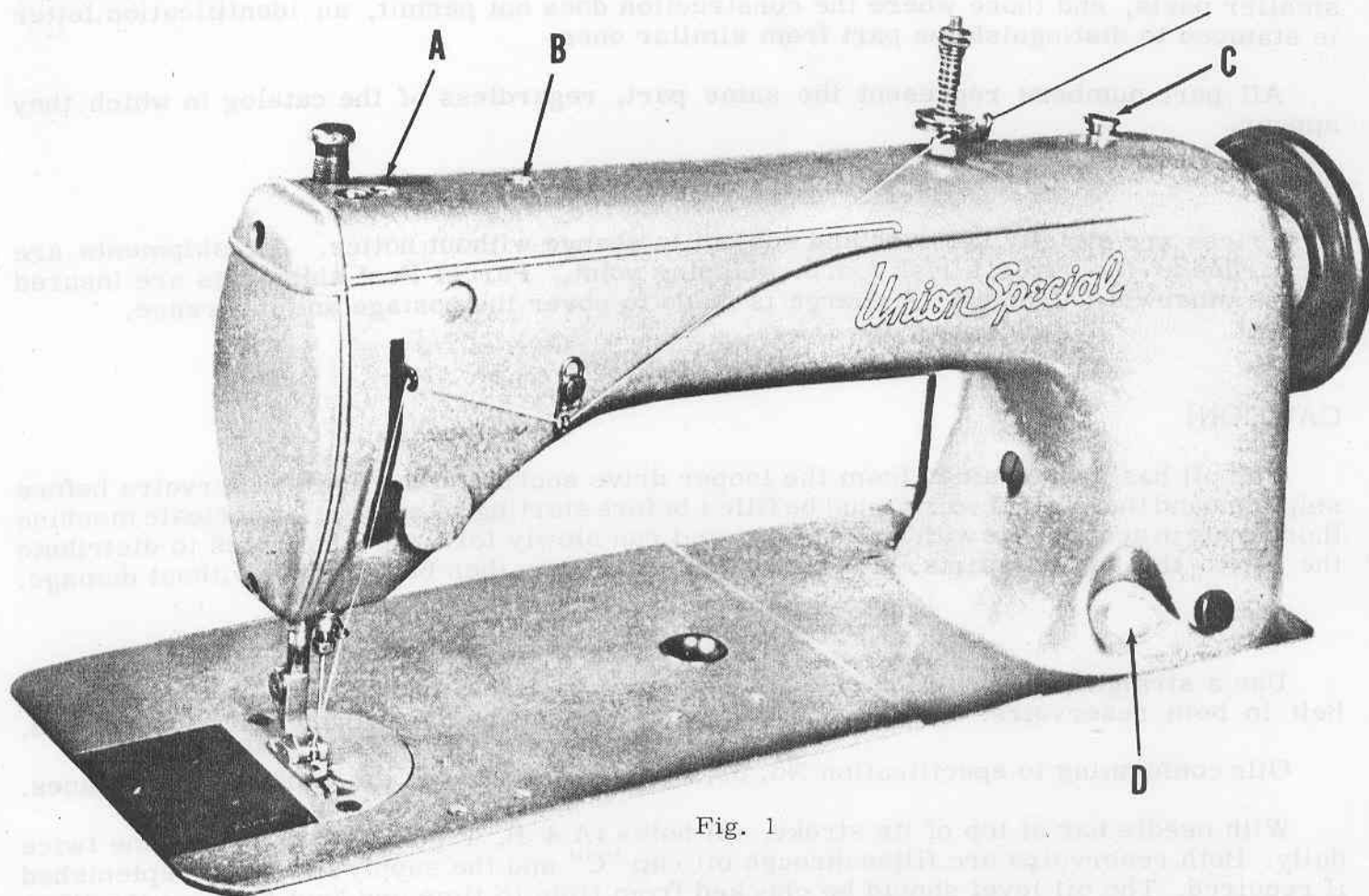


Fig. 1

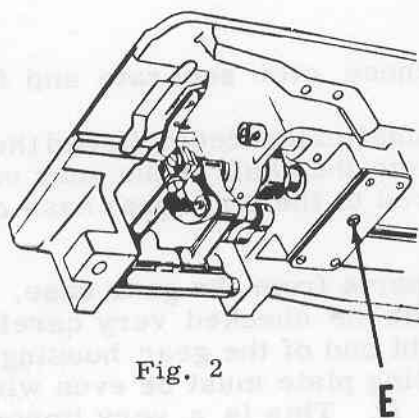


Fig. 2

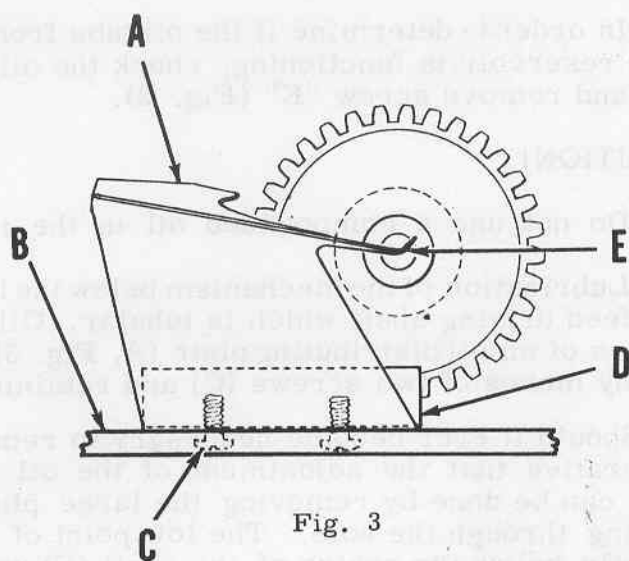


Fig. 3

The following is a numerical list of the parts used in this machine. Quantities, part numbers, and descriptions are given. Following the parts list are photographs of some of the major parts.

Amt.	Part No.	Description	Amt.	Part No.	Description	Amt.	Part No.	Description
1	G26	Screw for 61303 E	1	719	Set Screw for 61437 C	1	22845 D	Stud for 61434 (15037 A)
4	30-56	Wood Plug for 61132	1	753	Tape Spool Support	1	22845 G	Screw for 61449 E
1	50-552	Blk. Plug for 61132	2	6990	Axle Cone for 61100 C (22576)	1	22874 F	Screw for 61468 (9937)
1	50-558	Blk. Plug for bed	1	8372 A	Spring for 61120 A	1	22880	Spot Screw for main shaft counterweight
1	50-568	Blk. Oil Gauge	2	8372 A	Washer for 51758	1	22880	Spot Screw for 61449 E
2	HA61 D	Screw for intermediate gear shaft collar, right	1	9937	Washer for 61391 D	2	22884	Screw for main shaft gear
2	HA61 D	Screw for intermediate gear shaft collar, left	1	15037 A	Nut for 22874 F	2	22884	Screw for feed drive shaft gear
1	77	Screw for presser bar guide	1	15872 F	Nut for 22845 D	2	22884	Screw for feed drive shaft collar
2	88	Screw for looper shaft collar	2	21114	Spring for foot lifter lever	1	22890	Screw for 61466 A
1	88	Screw for 161	1	21114 W	Tape Spool Disc for 61100 C	1	22892	Screw for 61267
1	88	Screw for 61438 C	1	21171 R	Tape Spool Pin for 61100 C (258 A)	1	22892	Screw for 61367
1	88 D	Screw for feed dog holder support	1	21171 S	Tape Reel Assembly for 61100 C	1	22892	Screw for presser bar connection
1	89	Screw for feed bar	1	21171 U	Tape Reel Support for 61100 C (22581)	2	22894 C	Screw for looper holder
2	90	Screw for 61141 G	1	21171 V	Tape Tension Guide for 61100 C (22858 C)	2	22894 E	Screw for 61236 G
2	90	Screw for 61336 Y	1	21171 W	Tape Tension Guide Bracket for 61100 C (22585 A)	2	22894 V	Screw for main shaft counterweight
1	91	Looper Set Screw	1	21171 W	Tape Guide Wire for 61100 C (22585 A)	1	29126 BV	Looper Drive Eccentric Assembly for 61100 A, 61100 C
2	91 A	Screw for 61173	1	21177 A	Tape Reel Tension Spring for 61100 C	1	29126 CN	Looper Drive Eccentric Assembly for 61100 B
1	93 A	Screw for presser bar guide	1	22528	Screw for 61439	1	29126 DU	Feed Drive Eccentric Assembly
1	93 A	Screw for 61246 A	1	22539 D	Plug Screw for base	1	29475 K	Bed Slide Assembly
1	95	Screw for stitch length indicator	1	22562 A	Screw for needle bar connection stud	1	39151	Needle Clamp Nut
1	96	Spot Screw for stitch length indicator	3	22564 B	Screw for timing collar 61437 A	1	41064 B	Looper Drive Shaft
1	96	Spot Screw for 61237	2	22569 B	Screw for head cover	1	43217	Needle Bar
1	96	Spot Screw for 61137 B	1	22570 A	Screw for 51758	1	51236 A	Hinge Pin for 61285 G (22768)
1	96 A	Screw for 61141	4	22570 A	Screw for 61282 A	1	51242 M	Washer for 22802 A
1	98	Set Screw for 61237	6	22570 A	Screw for 61382 J	1	51292 A	Tension Post Ferrule
1	98	Set Screw for 61137 B	2	22570 A	Screw for 61394 Q	1	51292 D	Tension Thread Eyelet
1	107	Tension Post Ferrule	1	22570 B	Screw for main shaft counterweight	1	51430 F	Nut for 22840 A on 61120 C
1	108	Tension Post Nut	3	22574	Screw for 61321 J	1	51491 C	Thread Guide
2	109	Tension Disc	1	22576	Screw for 753	1	51758	Frame Needle Thread Eyelet (8372 A, 22570 A)
1	110-0	Tension Spring	2	22581	Screw for 21171 S	1	51930	Spring for 61120
1	161	Collar for 61445	1	22585	Screw for 61151	2	52782 C	Stud Screw for head cover on 61100 C
2	258 A	Nut for 21114 W, on 61100 C	1	22585 A	Screw for 21171 V, 21171 W	1	61102	Bed Slide
2	376	Screw for throat plate	1	22585 C	Screw for 21171 U	1	61105	Feed Dog (22768)
4	531	Screw for stitch regulating shaft collar	2	22596 D	Adjusting Screw for 61391 D	1	61108	Looper, marked "CA" (91)
1	652 B-20	Lock Washer for lifter lever stud	1	22597 A	Screw for 61445	1	61120	Presser Foot for 61100 A (22775)
1	660-142	Spring Cotter Pin for 61368 A	1	22597 A	Screw for 62262	1	61120 A	Presser Foot for 61100 B (22775)
2	660-184	Oil Tube Sleeve for 61193	1	22647 K-24	Thumb Screw for 21177 A	1	61120 C	Presser Foot for 61100 C (22775)
2	660-190	Oil Tube Coupling Nut for 61193	1	22712 F	Screw for 61368 F	1	61124-068	Throat Plate (376)
1	660-226	Needle Bearing for 29192 DU	1	22730	Plug Screw for 61282 A (660-257)	1	61130	Shank for presser foot 61120
1	660-257	Gasket for 22730	1	22743	Plug Screw for 61132	1	61130	Shank for presser foot 61120 A
2	666-20	Oil Wick for oil tubes 61293, 61393 B	1	22757 C	Screw for 61255 H	1	61130 A	Bottom for 61120
1	666-104	Oil Wick for main shaft bushing housing	1	22758 B	Screw for 61267	1	61130 B	Bottom, right, for 61120 A (22799 U)
2	668-25	Steel Insert for tension thread eyelet	1	22758 B	Screw for 61367	1	61130 C	Bottom, left, for 61120 A (22799 U)
2	668-29	Locking Ring for 668-25	2	22768	Screw for feed dog	1	61130 D	Plunger, right, for 61120 A
			1	22768	Screw for 51236 A	1	61130 E	Plunger, left, for 61120 A
			1	22775	Screw for presser foot	1	61130 F	Equalizer, for 61120 A (22799 N)
			1	22775 A	Screw for feed dog holder support			
			1	22799 M	Hand Lifter Screw Pin			
			1	22799 N	Screw for 61130 F			
			2	22799 U	Hinge Screw for presser foot 61120 A			
			1	22802 A	Screw for 61449 F			
			1	22817 A	Stud for 61468			
			1	22840 A	Adjusting Screw for presser foot 61120 C			

Amt.	Part No.	Description	Amt.	Part No.	Description	Amt.	Part No.	Description
1	61130 G	Bottom for 61120 C	1	61263	Bushing for feed	1	61394 P	Housing Cover Oil
1	61132	Feed Driving Shaft			driving shaft			Distributing Plate
		(22743)	1	61264	intermediate gear	1	61394 Q	Oil Distributing Plate
1	61132 C	Feed Driving Shaft			Intermediate Gear			Retaining Block
		Oil Retaining	1	61264 A	Shaft Collar, right	1	61394 R	(22570 A)
		Bushing, left			(HA61 D)	1	61394 AE	Gasket for 61394 Q
1	61137	Feed Driving	1	61265	Intermediate Gear	1	61394 AE	Oil Cup for filling
		Eccentric	1	61267	Shaft Collar, left			main reservoir
1	61137 B	Looper Driving			(HA61 D)	1	61421	Handwheel Assembly
		Eccentric for	1	61265	Hand Lifter (22799 M)			for round or No. 1
		61100 B (96, 98)	1	61267	Lifter Lever Link for			"V" belt
1	61141	Looper Shaft Bushing			61100 A, 61100 C	1	61421 A	Pulley Hub
		(96 A)			(22758 B, 22892)	1	61432 B	Feed Driving Shaft
1	61141 G	Looper Drive Link (90)	1	61267 G	Spring Pin for 15872 F			Bushing, right
1	61141 R	Looper Holder (91,	1	61282 A	Housing Cover, left	1	61432 C	Feed Driving Shaft
		22894 C)			(22570 A, 22730)			Bushing, left
1	61149	Stitch Length Indica-	1	61282 D	Gasket for 61382 J	1	61432 D	Feed Driving Shaft
		tor for 61100 B	1	61282 E	Gasket for 61282 A			Oil Retaining
		(95, 96)	1	61285 G	Looper Driving			Bushing, right
1	61149 A	Stitch Length Indica-			Eccentric Strap	1	61434	Feed Bar (88 D, 89,
		tor for 61100 A,	1	61293	Oil Tube for needle			22845 D)
		61100 C (95, 96)			bar driving link	1	61434 G	Washer for 61434
1	61149 G	Stitch Regulating	2	61293 N	Plug for inside of	1	61437 A	Stitch Regulating
		Eccentric			arm			Eccentric Timing
1	61149 H	Friction Disc for	1	61293 U	Oil Tube Coupling	1	61437 B	Stitch Regulating
		stitch regulating			Plug			Eccentric Pivot
		eccentric	1	61303 E	Edge Guide for			Pin
1	61151	Take-up Eyelet			61100 A, 61100 B(G26)	1	61437 C	Stitch Regulating
		(22585)	1	61321 J	Handwheel for 61421			Eccentric Housing
1	61152	Crank Pin for			(22574)	1	61438 C	(719)
		61100 B	1	61321 L	Washer for handwheel			Feed Driving Eccen-
1	61154	Needle Bar Bushing,	1	61322 B	Main Shaft	1	61439	tric Connecting Rod
		lower	1	61330	Shank for 61120			(88)
1	61158	Presser Bar Connec-	1	61330 B-	Hinge Pin for presser	1	61439 A	Feed Dog Holder
		tion for 61100 B		31	foot 61120 C			(22528)
		(22892)	1	61330 B-	Hinge Pin for 61120	1	61445	Feed Dog Holder
1	61170	Needle Thread Guide		35	Shank for 61120 C			Support (88 D,
1	61173	Bed Slide Spring	1	61330 AH	Feed Rocker Shaft	1	61447	22775 A)
		(91 A)	2	61336 U	Bushing			Stitch Regulating
2	61175	Machine Hinge Stud			Feed Rocker Oil	1	61449 B	Plunger (22597 A)
1	61193	Oil Tube for feed	1	61336 Y	Wick (90)	1	61449 E	Stitch Regulating
		driving eccentric	2	61342	Looper Shaft Collar			Plunger Lever
		assembly			(88)			Spring
2	61193 A	Oil Tube Coupling	1	61348 A	Stitch Regulating	1	61449 F	Spring for 61149 G
1	61233 N	Feed Lifter Link			Shaft	1	61449 H	Stitch Regulating
2	61235	Feed Bar Shaft	1	61351 K	Needle Bearing Roller			Pawl Collar
1	61236	Feed Rocker	1	61356	Presser Spring	1	61457 B	(22845 G, 22880)
1	61236 G	Feed Rocker Shaft	1	61360	Main Shaft Driving	1	61457 C	Stitch Regulating
		(22894 E)			Gear (22884)			Pawl (22802 A,
1	61237	Looper Driving	1	61360 G	Feed Driving Shaft	1	61457 C	51242 M)
		Eccentric for			Collar (22884)	1	61457 H	Stitch Length Indica-
		61100 A, 61100 C	1	61366 C	Lifter Lever Exten-	1	61457 B	tor Insert
		(96, 98)			sion Stud (652 B-20)	1	61457 B	Presser Bar
1	61245 G	Stitch Regulating	1	61367	Lifter Lever Link for			Presser Spring
		Plunger Binding			61100 B (22758 B,	1	61457 C	Regulator
		Insert	1	61368	22892)			Presser Bar Bushing,
1	61246 A	Stitch Regulating			Lifter Lever Connec-	1	61458	lower
		Plunger Lever (93 A)	1	61368 A	ting Rod			Presser Bar Connec-
2	61248 H	Stitch Regulating	1	61368 F	Lifter Lever Connec-	1	61459 A	tion for 61100 A,
		Shaft Collar (531)			ting Rod, complete	1	61466 A	61100 C (22892)
1	61252 J	Crank Pin for			(660-142)			Presser Bar Guide
		61100 A, 61100 C	1	61368 H	Foot Lifter Ball Crank	1	61466 A	(77, 93 A)
1	61254	Needle Bar Bushing,			Roller (22712 F)			Foot Lifter Lever
		upper	1	B61382 H	Head Cover (22569 B)	1	61468	(22890)
1	61255	Needle Bar Connec-	1	61382 J	Housing Cover, right			Lifter Lever Bell
		ting Stud (22562 A)			(22570 A)	1	61490	Crank (22817 A,
1	61255 H	Needle Bar Link	1	61391 D	Main Shaft Counter-			22874 F)
		(22757 C)			weight (22570 B,	1	61490 A	Main Shaft Bushing,
1	61256 G	Presser Spring			22596 D, 22880,	1	62262	right
		Washer			22894 V)			Main Shaft Bush., left
1	61260 A	Feed Driving Shaft	1	61393 B	Oil Tube for left	1	81292	Intermediate Gear
		Gear (22884)			main bearing			Shaft (22597 A)
1	61261 A	Feed Driving Shaft						Tension Post
		Intermediate Gear						

NOTE: Numbers in parenthesis following parts' description indicate the screws, nuts, etc. used to attach or hold these parts.



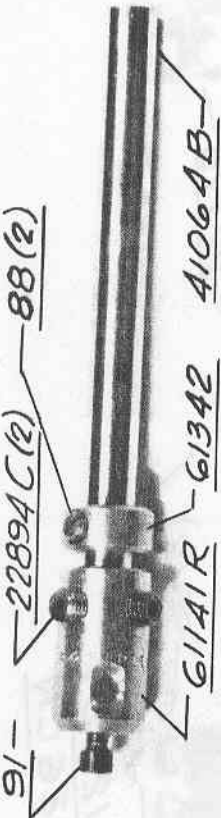
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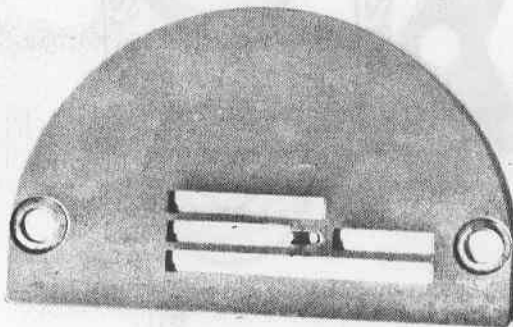
61120



61120C



61108



61124-068



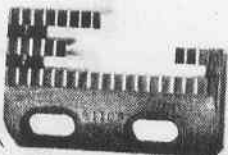
376(2)



22768(2)



61439



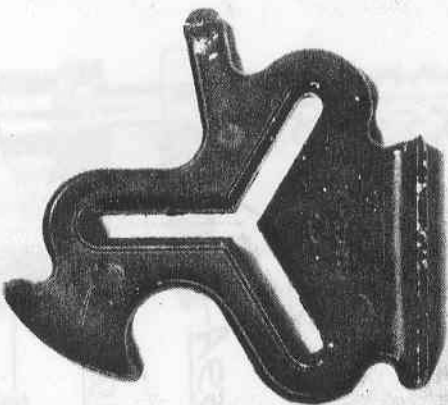
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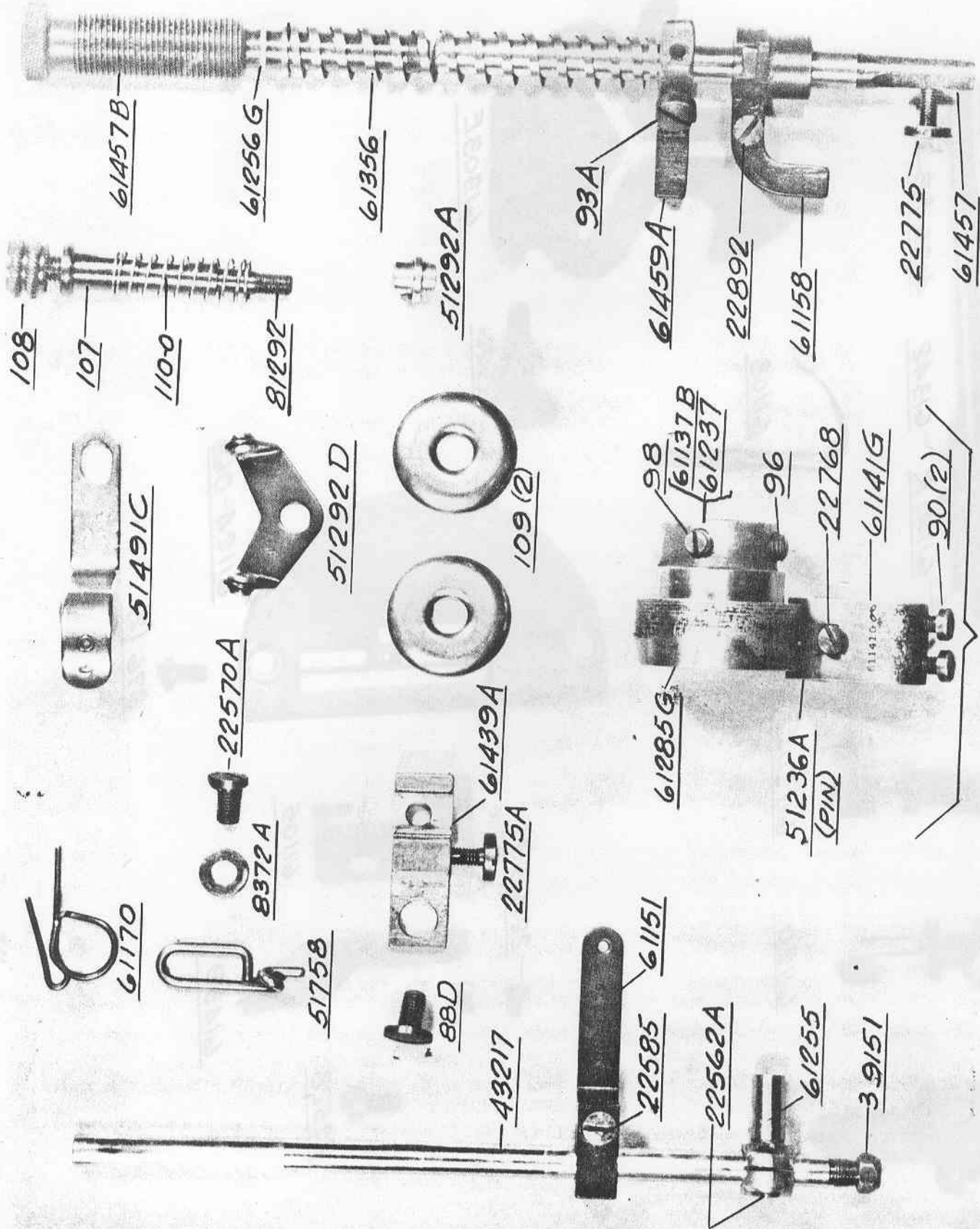
22528



G26



61303E



22576
753



258A (2)

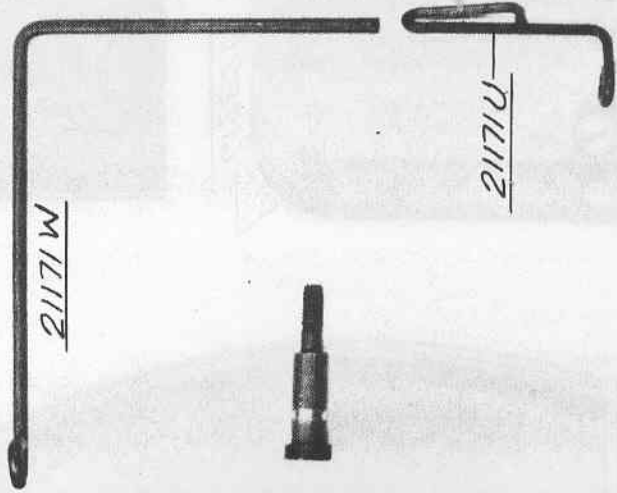


21171S



22585A (2)

22581 (2)



21171W

21171U



21171V



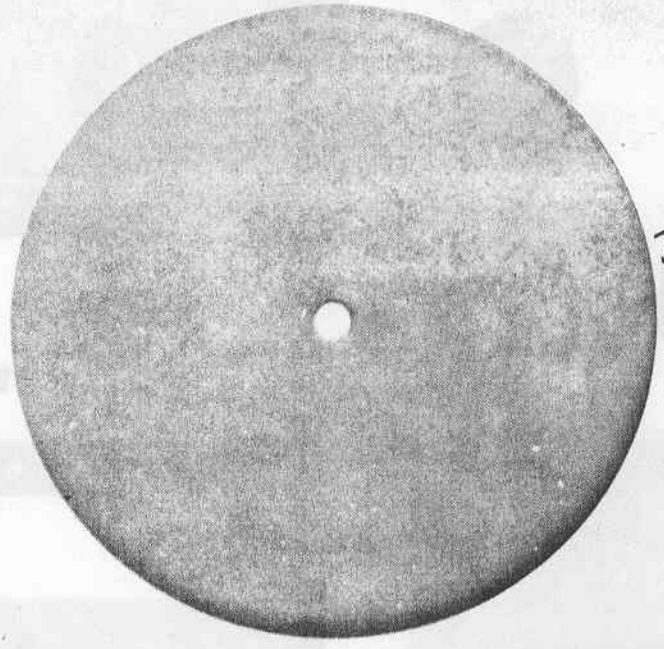
22585C



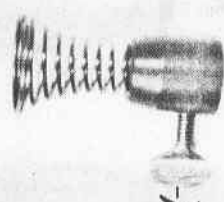
52702 C (2)



21114W



21114 (2)



22647K-24-

21177A

21171R

22570A (2)

61394Q

61394R

61394P

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22570A (6)

22570A (4)

22730

61282A

61282E

91A (2)

61173

29475K

61382J

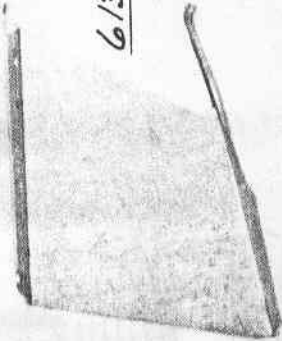
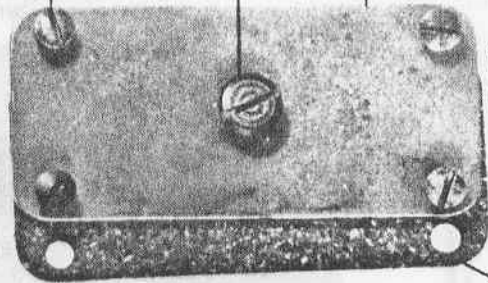
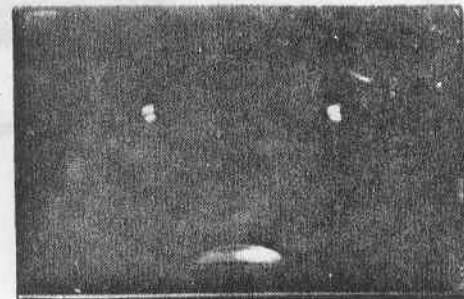
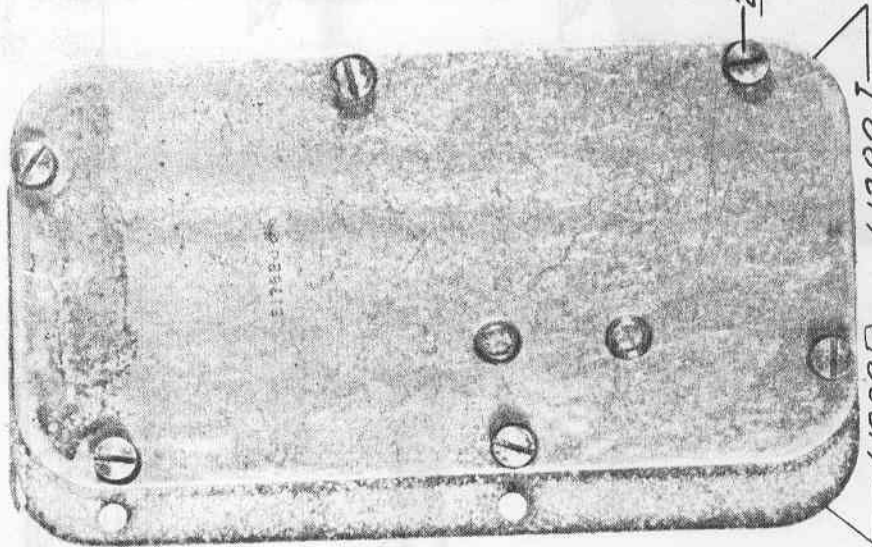
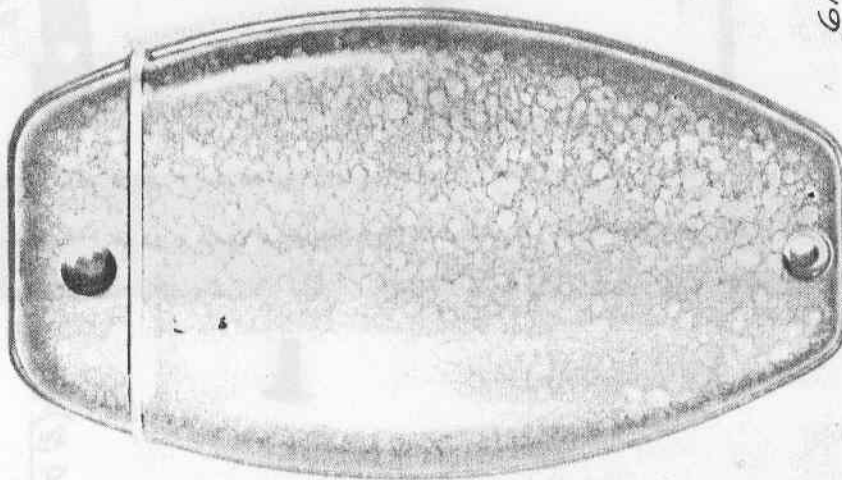
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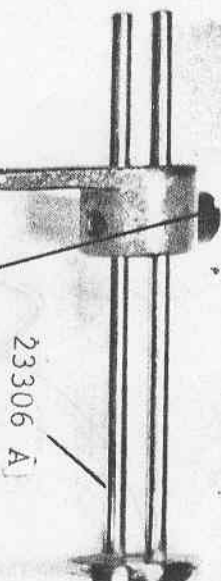
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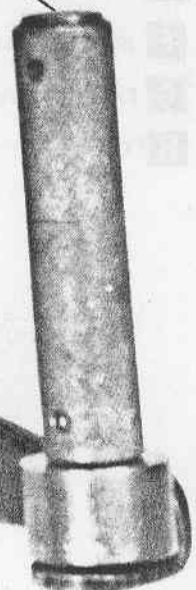




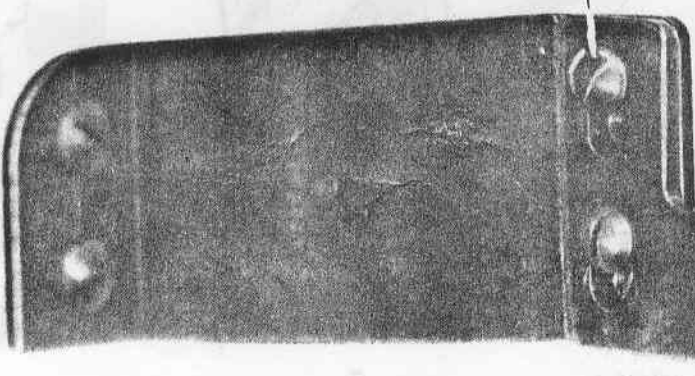
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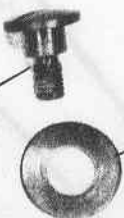
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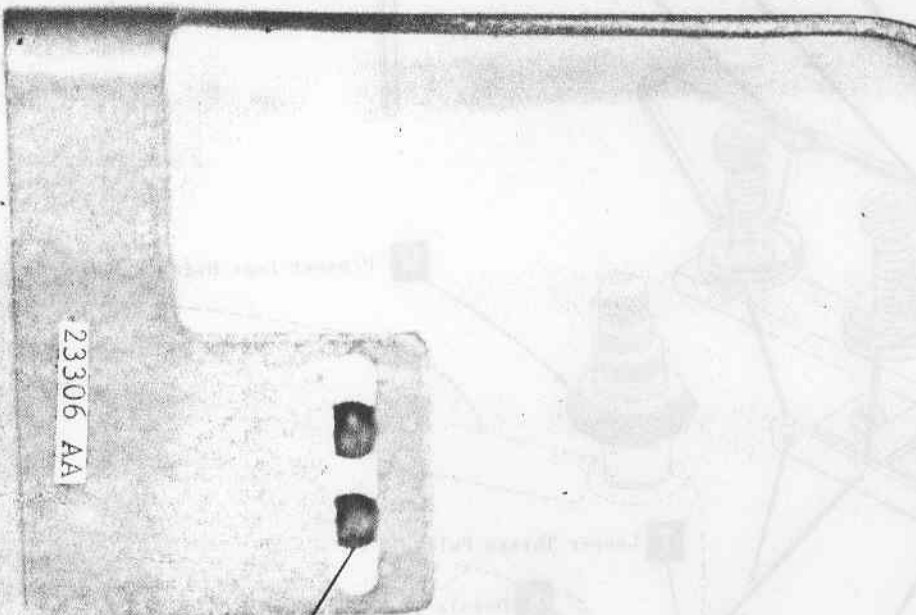


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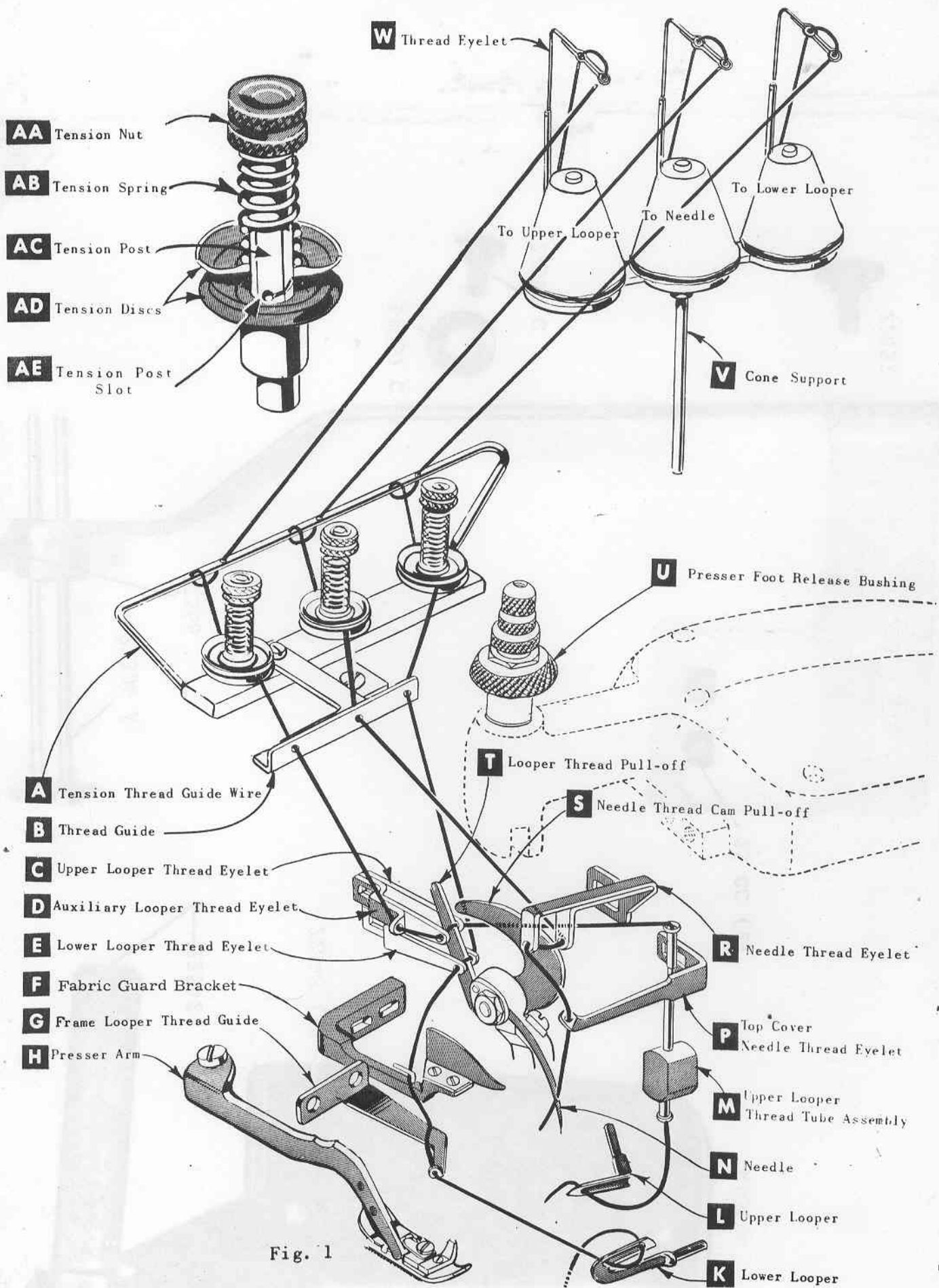


22837



23306 AA

25 CC (2)



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).

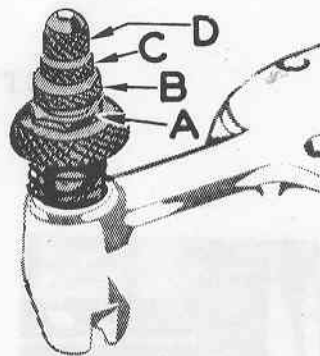


Fig. 2

FEED ECCENTRICS

Feed eccentrics used in this machine have been selected to produce approximately 12 stitches per inch. It will be noted that the part number of main feed eccentric is No. 39540-14 while that of differential feed eccentric is No. 39540-12. 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.

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. Only two eccentrics are supplied with each machine. Additional eccentrics may be ordered separately. To order an eccentric, use No. 39540 with a minor number suffixed to indicate number of stitches desired. Example: "39540-12".

ASSEMBLING AND ADJUSTING SEWING PARTS

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

SETTING THE NEEDLE

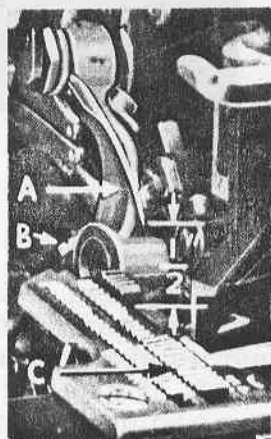


Fig. 3

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 1/2 inch above throat plate (Fig. 3). Move needle driving arm (A, Fig. 3) by loosening clamp screw (B). Remove throat plate.

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

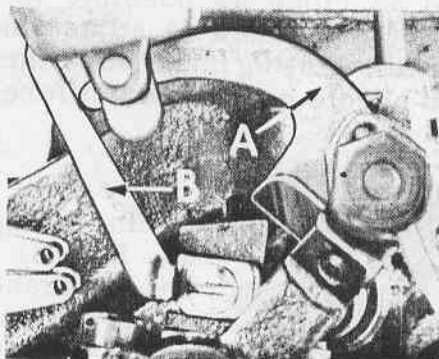


Fig. 4

SETTING THE NEEDLE (Continued)

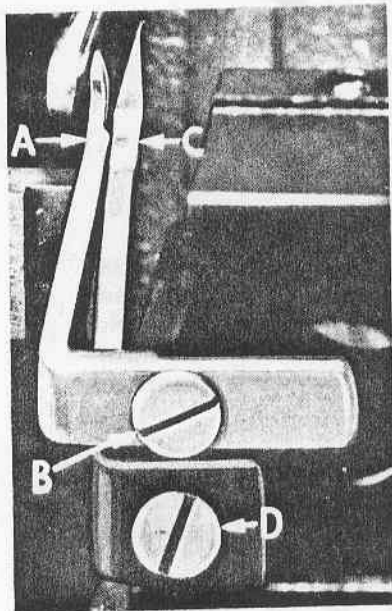


Fig. 5

At this point, insert lower looper (A, Fig. 6) into bar (B). With lower looper at left end of its stroke, set looper point $1/8$ inch from center of needle (Fig. 6), using looper gauge No. 21225- $1/8$. Do not have lower looper deflecting needle. Tighten nut.

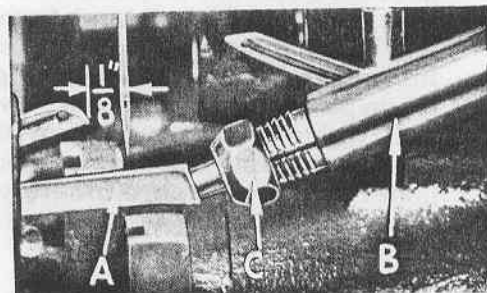


Fig. 6

Now assemble differential (front) feed dog.

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. 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

Assemble front needle guard (C, Fig. 5). When lower looper is springing needle off back 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 dogs.

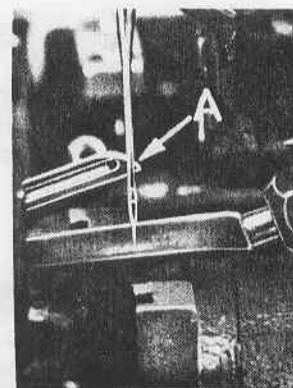


Fig. 7

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) on clamp holds the upper looper holder in the shaft. Locate upper looper in its holder so that the shank extends $1/16$ to $3/32$ inch beyond holder (Fig. 8).

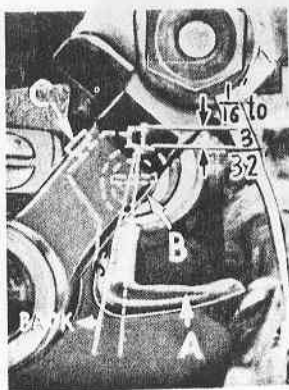


Fig. 8

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 on 39500 A and B (Fig. 8).

SETTING THE UPPER LOOPER (Continued)

NOTE: On 39500 P, the 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).

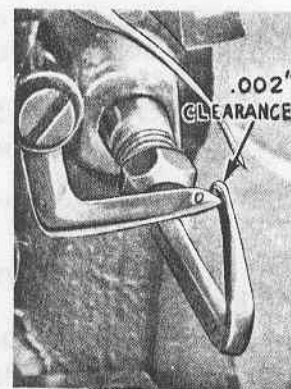


Fig. 9

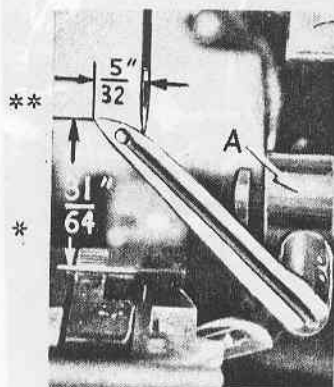


Fig. 10

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). Figure 10 represents the dimensional setting for Styles 39500 A and B.

NOTE: For Style 39500 P, the settings are $\frac{1}{2}$ and $\frac{9}{64}$. For example, dimension $\frac{31}{64}$ inch is increased by turning upper looper holder counterclockwise looking from left end of machine; dimension $\frac{5}{32}$ 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.

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 A and B.

NOTE: For Style 39500 P, 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 counter-clockwise, looking from left end of machine. Reset to maintain dimensions of Fig. 9, 10, 11.



Fig. 11

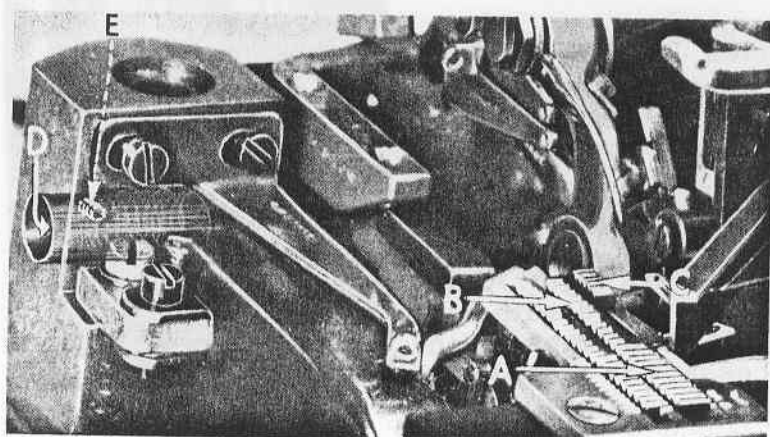


Fig. 12

SETTING THE FEED DOGS

On Style 39500 A set all three feed dogs (A, B, C, Fig. 12) so the top surfaces of teeth all lie in the same plane. This can be checked by sighting across teeth with a straight edge. 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.

SETTING THE FEED DOGS (Continued)

The feed dogs should be set level at the time teeth first appear above the throat plate. Screw (E) locks feed tilting adjusting pin in place. Now set feed dogs so that teeth rise about $3/64$ inch above throat plate.

NOTE: On Styles 39500 B and P set chaining feed dog (C) level with top of throat plate when dog is at 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.

SETTING THE UPPER KNIFE

Replace upper knife assembly. Clamp upper knife (D, Fig. 13) in position, setting screw (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.

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.

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.

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.

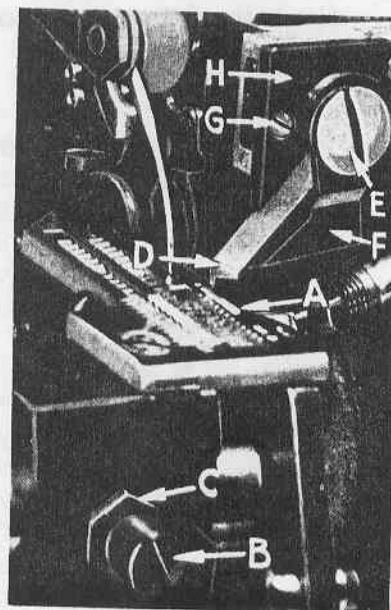


Fig. 13

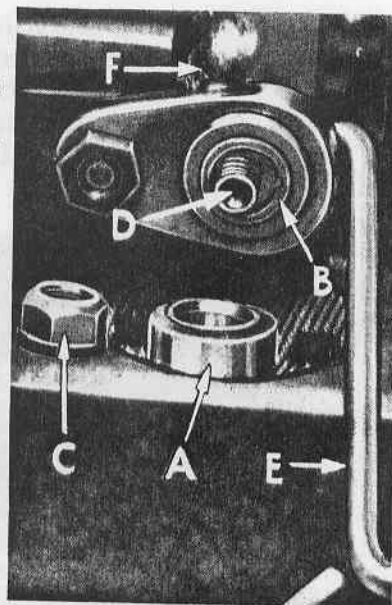


Fig. 14

SETTING THE STITCH LENGTH (Continued)

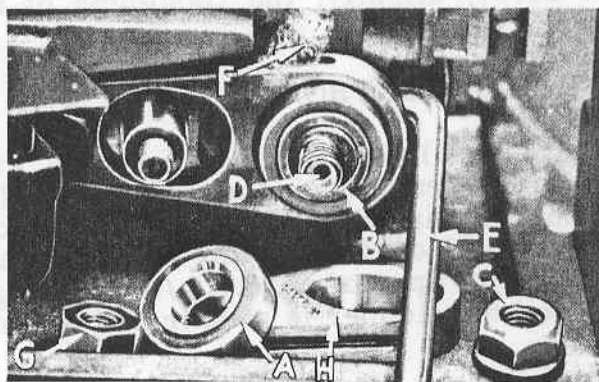


Fig. 15

Foot lifter lever arm (A, Fig. 16) 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 looper will permit; then, lock nut (D). To find this maximum safe position, turn the handwheel so point of upper looper 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 looper. 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).

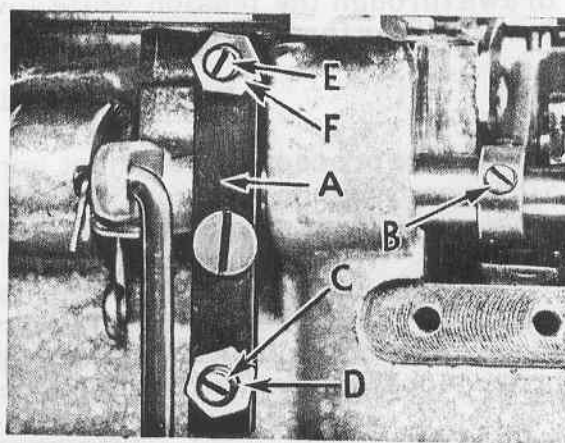


Fig. 16

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

STARTING TO OPERATE

Be sure machine is threaded according to threading diagram (Fig. 1, page 7). With thread tensions light, set looper thread eyelets (C & E) 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

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.

NEEDLE THREAD CONTROL (Continued)

On Style 39500 P 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

With material under presser foot, set lower looper thread eyelet (E, Fig. 1) back far enough so thread is a little slack when looper thread pull-off (T) reaches its most rearward position. Looper thread pull-off (T) is set about 1/8 inch distance behind needle thread cam pull-off (S). Frame looper thread guide (G) should be set with its left hand eyelet approximately 1/8 inch right of lower looper (K) 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 (E) down, keeping the same amount of pull-off action.

UPPER LOOPER THREAD CONTROL

Before proceeding to adjust upper looper thread eyelet (C, 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 (T) 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

To move the purl more under the edge, both looper thread eyelets (C & E, 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 (T) 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

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.

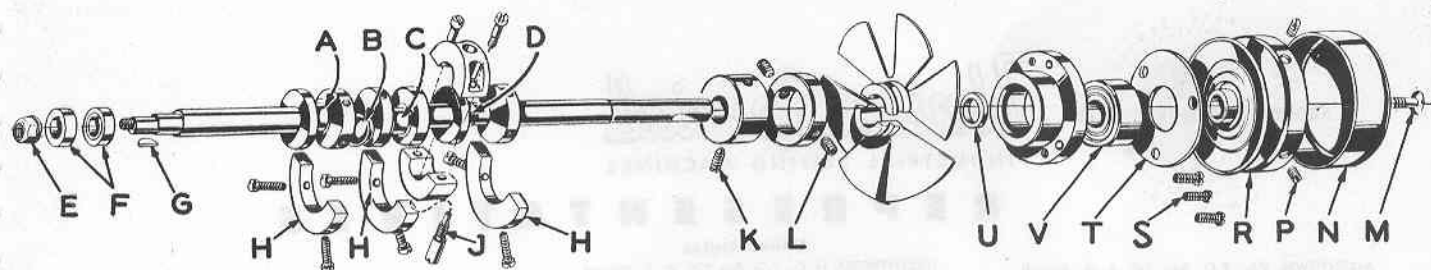


Fig. 17

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 (E, Fig. 17) and, with the aid of the eccentric extractor, slip off the eccentrics (F).
4. Remove key (G).
5. Remove three counterweights (H). Identify these counterweights so that they will be re-assembled in the proper places.
6. Remove screw (J) which holds crankshaft split bearing. This screw is reached through bottom of bed casting.
7. Remove caps of bearings on crankshaft at points A, B, and D. 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 (C, Fig. 17) on crankshaft. Observe same precautions when re-assembling cap as described in 7 above.
9. Remove screw (K, Fig. 17) which holds inner right crankshaft bearing. This screw is reached through bottom of bed casting.
10. Loosen two screws (L) in fan collar; remove both halves of cooling fan.
11. Remove screw (M); take off pulley cap (N).
12. Loosen two screws (P); remove pulley (R).
13. Remove three screws (S); take off bearing retaining plate (T).
14. Crankshaft may now be removed.
15. If necessary to replace ball bearing (V), 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 (U).
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.

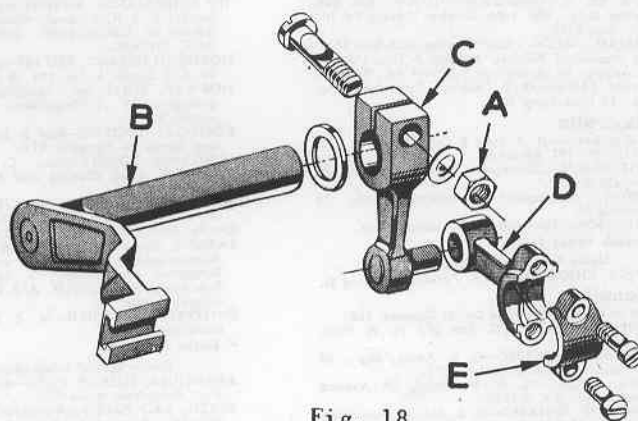


Fig. 18



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