CATALOG NO.

PT1502-GR

First Edition

STYLES

56100MZ27BT
56100MZ34BT
56100MZ38BT

INSTRUCTIONS AND ILLUSTRATED PARTS LIST

CLASS 56100 - ADVANCED SERIES, BAG SEAMING MACHINES

Finest Quality
Since 1881

Union Special®
INDUSTRIAL SEWING EQUIPMENT

RoHS
2002/95/EC

10-26-2020

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ADJUSTNG INSTRUCTIONS
AND
ILLUSTRATED PARTS LIST FOR
CLASS 56100
ADVANCED SERIES
BAG SEAMING MACHINE

STYLE
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56100MZ34BT
56100MZ38BT

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PRINTED 2015 IN USA

INFORMATION SUBJECT TO
CHANGE WITHOUT NOTICE

IDENTIFICATION OF MACHINES

Each UNION SPECIAL machine carries a Style number, which on this Class machine is stamped into the style plate affixed to the right front of machine.

The serial number is stamped in the casting at the right rear base of machine.

Reference to directions, such as right, left, front or rear, are given relative to the operator's position while seated at the machine. Operating direction of the handwheel is counterclockwise, as viewed from the right end of machine.

CLASS DESCRIPTION

Advanced high speed, single needle, flat bed machine with needle bearing assembly for left mainshaft bushing. High throw, needle bearing needle bar drive, light weight presser bar and needle bar driving mechanism, enclosed automatic lubricating system, filtered oil return pumps for head and base, lateral looper travel. Maximum work space to right of needle bar, 8 1/4 inches (209.6mm).

MACHINE STYLE

*56100MBT Typical application - For seaming medium and large size cotton, light and medium weight burlap bags. Stitch range 3 1/2 to 7. Seam specification 401-SSa-1. Maxmum recomended speed 6000 R.P.M. sewing at 3 1/2 to 5 S.P.I. and 6500 R.P.M. sewing at more than 5 S.P.I. Recommended speed for machines operating on a duty cycle of 50% or more is 10% less than maximum.

*56100PBT Typical application - For seaming medium to large bags. Ultra High Throw, Stitch range 3 1/2 to 7. Seam specification 401-SSa-1. Maxmum recommended speed 6000 R.P.M.

*56100TBT Typical application - For hemming bag openings and for producing side and bottom double turned-in seams on woven polypropylene bags. Stitch range 3 1/2 to 7. Seam specification 401EFb-1 or 401SSp-1. Maximum recommended speed 6000 R.P.M.

56100MZ27BT Similar to 56100TBT, without hemmer.

56100MZ34BT Similar to 56100MZ27BT, except for use on automated equipment.

56100MZ38BT Similar to 56100MZ27BT except with tapered front throat plate.

*Complete catalog for these styles is CATPT1501-GR.

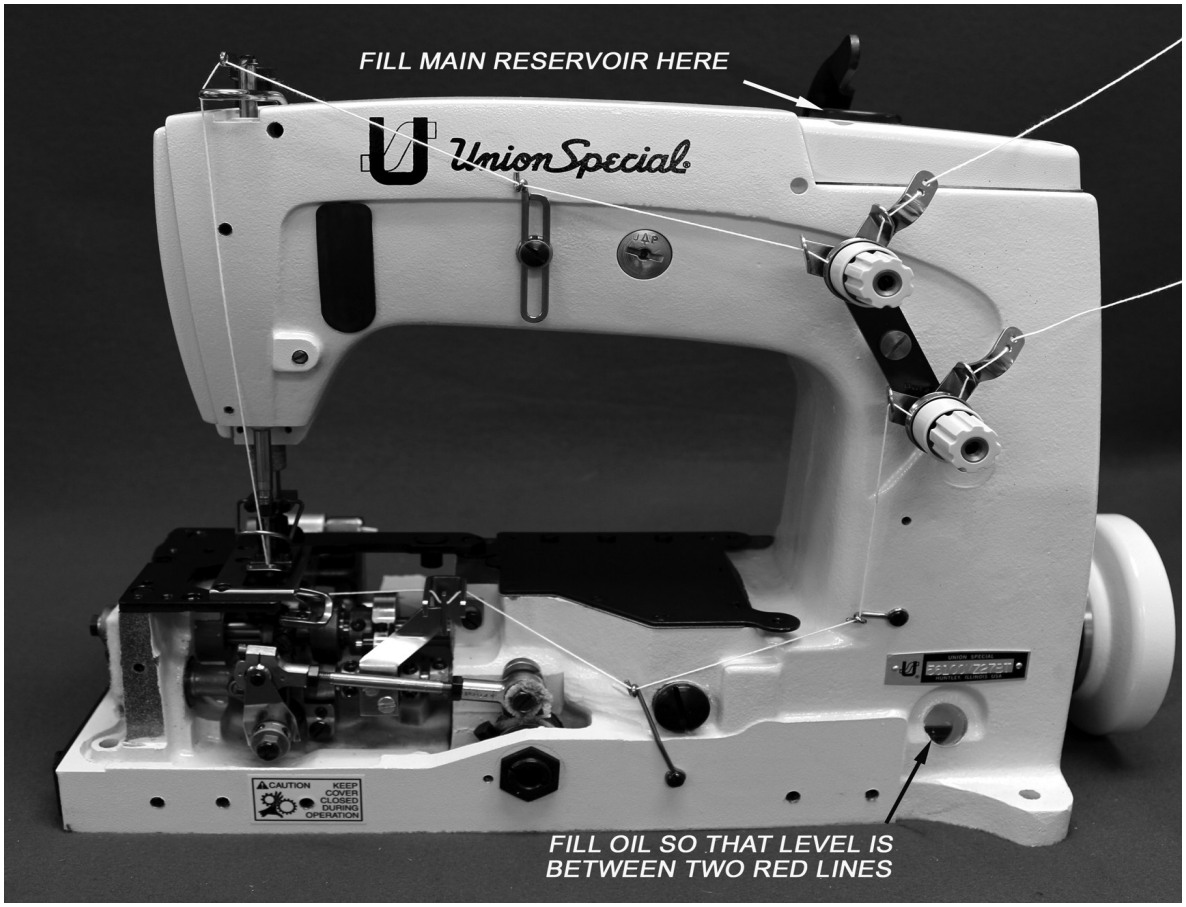
NEEDLES

Each needle has both a type and size number.The type number denotes the kind of shank, point, length, groove, finish and other details. The size number, stamped on the needle shank, denotes largest diameter of blade, measured midway between shank and eye. Collectively, type and size number represent the complete symbol, which is given on the label of all needles packaged and sold by UNION SPECIAL.

Recommended needle for Styles 56100MZ27BT, MZ34BT, MZ38BT is Type 144GS. It has a round shank, round point, No. 2 bag length, double groove, spotted, short point, chromium plated, and is available in sizes - 054, 200/080, 230/090, 250/100.

An optional needle for Styles 56100MZ27BT, MZ34BT, MZ38BT is Type 143GS. It has a round shank, round point, No. 2 bag length, double groove, spotted, struck groove, cromium plated, and is available in sizes 140/054, 150/060, 170/067, 200/080, 230/090, 250/100.

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



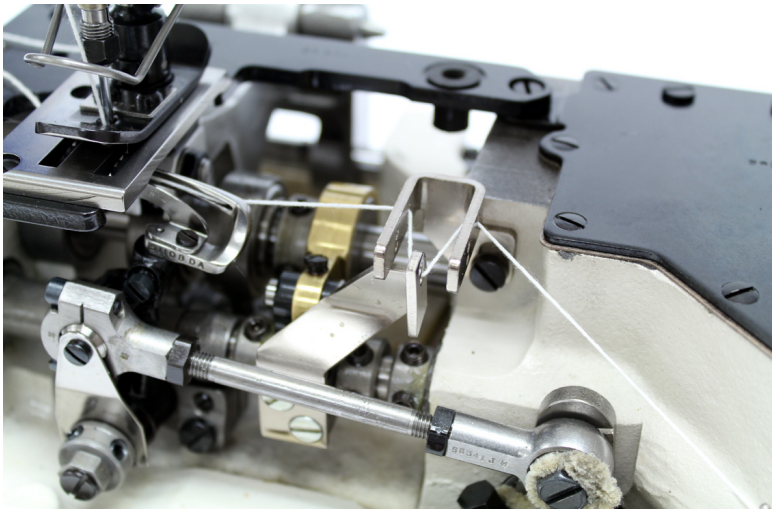


Fig 1

THREADING AND OILING DIAGRAM

Thread machine as indicated above. The looper thread should go through the back holes in the hread guide.

The oil has been drained from the machine before shipping and the reservoir must be filled before starting to operate. Maintain oil level between the two red lines and add oil when oil level drops below the bottom red line. The machine is automatically lubricated and no oiling other than keeping the main reservoir filled is necessary. For further lubricating instructions refer to paragraph on "LUBRICATION".

SAFETY RULES

CAUTION

THIS SAFETY SYMBOL INDICATES YOUR PERSONAL SAFETY IS INVOLVED.

TO PREVENT PERSONAL INJURY:

- All power sources to the machine MUST be TURNED OFF before threading, oiling, adjusting or replacing parts.
- Wear safety glasses.
- All shields and guards MUST be in position before operating machine.
- DO NOT tamper with safety shields, guards, etc., while machine is in operation.

LUBRICATION

Use a straight mineral oil with a Saybolt viscosity of 90 to 125 seconds at 100 degrees F. This is equivalent to UNION SPECIAL Specification No. 175.

Before operating, fill machine with oil at plug screw (A, Fig. 2). While filling machine with oil, check gauge (B). When proper oil level is reached, the oil level should appear in the center between the two red lines on gauge (B). It is recommended to always check oil level before operating to be sure machine is filled between the lines. CAUTION: DO NOT over fill machine.

To drain oil, remove plug screw, at right, in front, below handwheel or lower crank chamber cover on back of machine. Oil must be changed every 2000 operating hours to minimize wear.

On new machines, or a machine out of service for an extended period of time; lubricate machine as follows:

Remove head cover, clean out lint, then directly oil needle bar link and needle bar. Replace head cover and fill machine with oil to proper level. Run machine at low RPM to ensure proper lubrication of components preventing any damage which may occur from lack of oil distribution.

Fig 2

SYNCHRONIZING LOOPER AND NEEDLE MOTIONS

Fig 3

Synchronization is the most important adjustment involving the needle and looper motion relation, because it maintains the needle-looper relation at both the needle loop taking time, as well as when the needle enters the looper triangle. This adjustment is best made using synchronization gauge set TT34.

Remove the throat plate, feed dog, looper and needle thread take-up wire, (also called strike-off wire). Fig 3 Using gauge set TT34, attach the synchronizing plate (A) to the throat plate support with the throat plate screws. Insert the pin (B) into the hole for the looper and tighten with its screw. Turn the handwheel in operating direction, (towards the operator), until the pin lightly touches the right edge of the synchronizing plate. Insert the indicator (C) into the hole for the needle thread take-up wire, and move it up or down until the pointer (D) on the indicator reads at "0", and then tighten the screw. Now turn the handwheel in opposite of operating direction (away from the operator), until the pin again lightly touches the right edge of the plate. If the machine is synchronized the pointer on the indicator should again read "0". If the pointer is above or below the "0", the machine is out of synchronization. A variation of one line is allowable.

To synchronize the machine the following procedure should be followed. Thread screw (F) (99271), from gauge kit TT34, into the looper drive lever rocker shaft through the center of the thrust adjusting screw.

If the pointer (D) on the indicator reads above the "0" (Fig. 3A). Loosen screw (E) in the looper drive lever and pull screw (F), (99271), slightly toward the operator. Retighten screw (E) in the looper drive lever and recheck the synchronization as outlined above. Repeat as necessary to obtain proper synchronization.

If pointer on the indicator reads below the "0", (Fig. 3B). Loosen screw (E) in the looper drive lever and tap screw (F), (99271), slightly away from the operator. Retighten screw (E) in the looper drive lever and recheck the synchronization as outlined above. Repeat as necessary to obtain proper synchronization.

If synchronization gauge set TT34 is not available, the following procedure can be used.

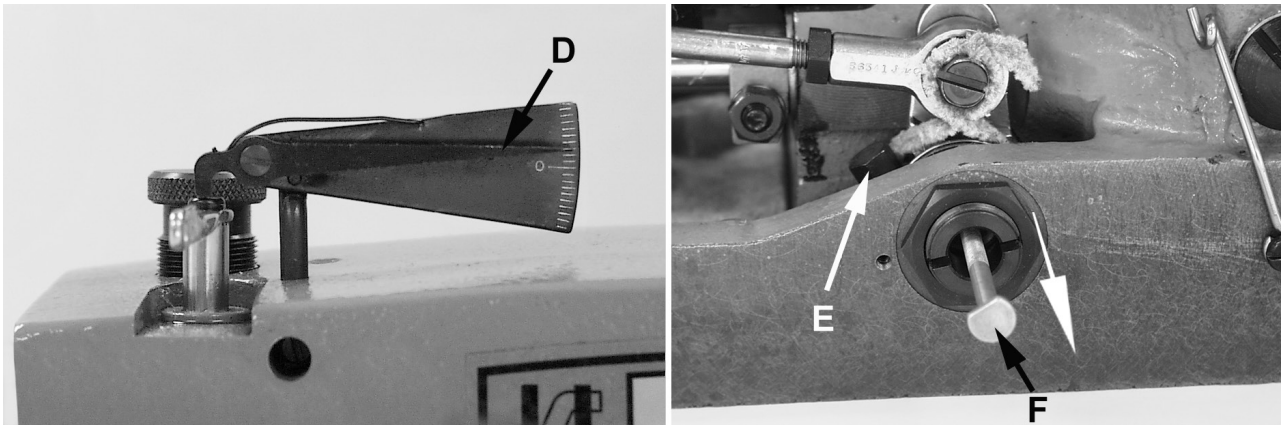


Fig 3A

SYNCHRONIZING LOOPER AND NEEDLE MOTIONS (CONTINUED)

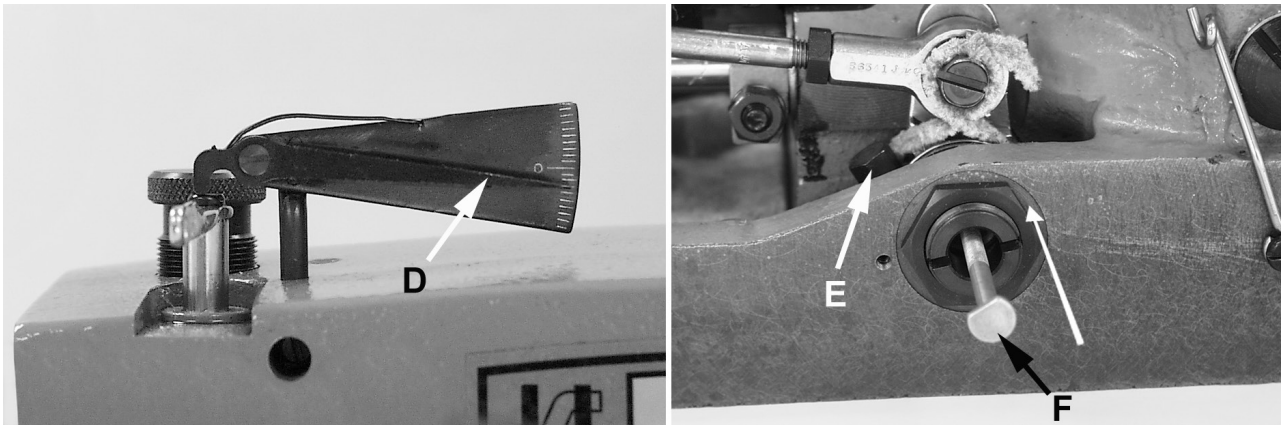


Fig 3B

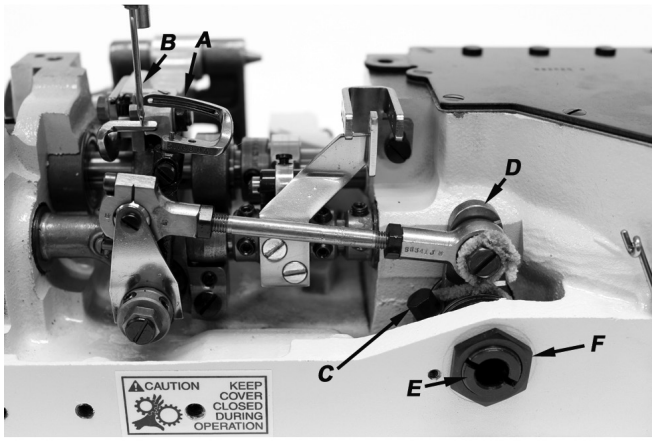


Fig 4

Turn handwheel in the operating direction until the point of the looper (A, Fig. 4) moving to the left, is even with the left side of needle (B). Note the height of the eye of the needle with respect to the looper point (See Fig. 4A). Turn the handwheel in the reverse direction until the point of the looper again moving to the left, is even with the left side of needle (See Fig. 4A). If the height of the eye of the needle with respect to the looper point are the same, looper and needle motions are synchronized - a variation of .005 inch (.127mm) is allowable. If the distance from the eye of the needle to the point of the looper is greater when the hand-wheel is turned in the operating direction, the looper drive lever rocker shaft will have to be moved slightly towards the rear. Moving the shaft towards the front acts the reverse.

NOTE: The 1/64 inch (.4mm) dimension shown in Fig. 4A is for final setting of needle bar height.

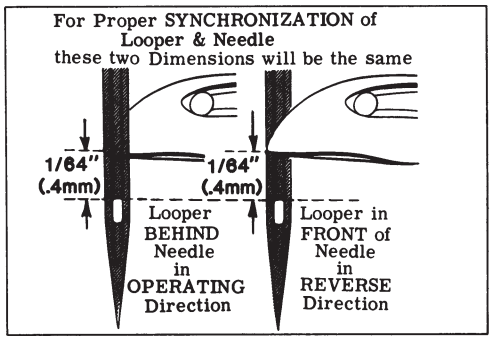


Fig 4A

Adjust looper drive rocker lever shaft as follows:

Loosen screw (C, Fig. 4) in looper drive lever (D). A rod of .146-40 thd. or Union Special Screw No. 99271 can be threaded into the looper drive lever rocker shaft through the center of thrust adjusting screw (E). Tap or pull slightly as required to position shaft for proper synchronization. Tighten screw (C) securely and remove rod or screw used to position shaft.

SYNCHRONIZING LOOPER AND NEEDLE MOTIONS (CONTINUED)

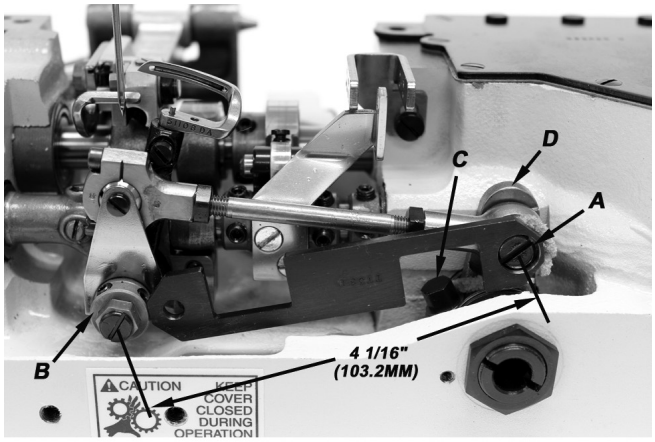


Fig 5

Loosen lock nut (F) and TORQUE thrust adjjusting screw (E) to 6 in. lbs. (7cm/kg); re-tighten lock nut (F) securely.

With the looper at extreme right end of travel, check location of the right looper connecting rod bearing using gauge No. TT35. Place large hole of gauge over threaded stud (A, Fig. 5). The left end of gauge should locate against the RIGHT side of looper rocker cone (B). If adjustment is necessary, loosen clamp screw (C) and reposition looper drive lever (D) as required, then tighten screw (C).

If gauge is not available, check setting with a scale. Distance between the centerline of rocker cone and centerline of looper drive lever stud should be 4 1/16 inch (103.2mm) as shown in Fig. 5 when looper is at its extreme right end of travel.

LOOPER AND LOOPER NEEDLE GUARD SETTINGS

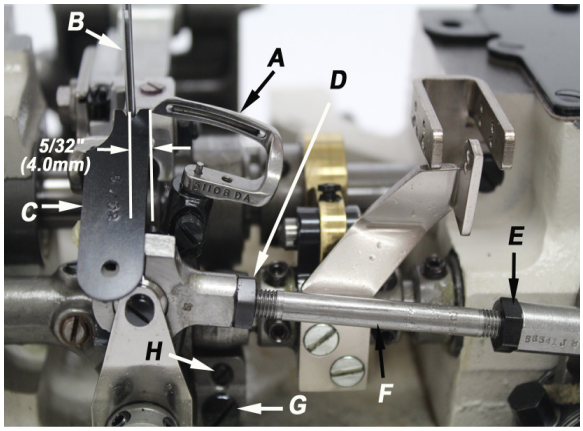


Fig 6

Insert a new needle, type and size specified. Looper gauge is 5/32 inch (4.Omm) which is the distance from point of looper (A, Fig. 6) to centerline of needle (B) when looper is at extreme right end of its travel. Looper gauge No. 21225-5/32 (C) is available for this setting. Adjustment can be made by loosening nut (D),(it has a left hand thread) and nut (E); turn connecting rod (F) as required to attain specified dimension. Hold connecting rod in position and tighten nut (E), then nut (D). NOTE: Be sure that the left ball joint is in a vertical position and does not bind after adjustment.

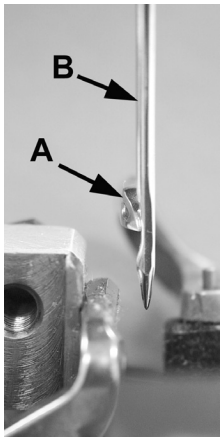


Fig 7

While turning handwheel in operating direction and the looper (A, Fig. 7) moves to the left, its point should be set to brush but not pick at rear of needle (B). Adjustment can be made by loosening screw (G, Fig. 6), turn stop screw (H) clockwise to move looper towards the rear, counterclockwise acts the reverse. It is suggested to hold looper towards the front while making this adjustment. Tighten screw (G) after adjustment has been made and recheck movement of looper.

Looper needle guard (attached to looper) should be set with the looper point set to the centerline of the needle, set front guard 0.005" to 0.010" (0.13 to 0.25 mm) away from looper.

NEEDLE BAR HEIGHT

Turn handwheel to position point of looper (A, Fig. 8) 1/64" (0.4mm) past the left side of needle (B). At this time the top of the eye of the needle (B) should be even with the under side of the looper (A). To make adjustment, loosen screw (C Fig. 14) and move needle bar (A) up or down as required.

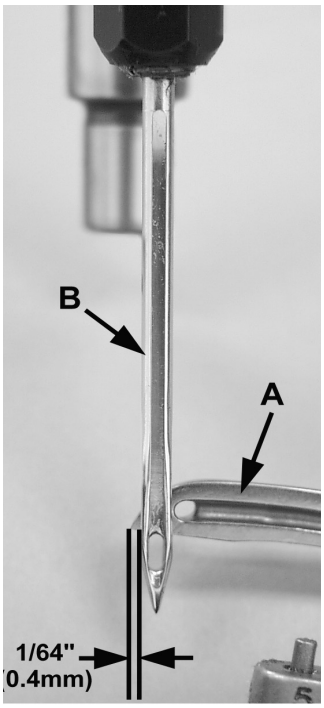


Fig 8

FEED DOG SETTINGS

Feed dog (A, Fig. 9) should be centered in throat plate (B) with equal clearance on all sides and ends with feed travel set to desired stitch length. At highest point of travel, tips of feed dog teeth should extend the depth of 1 full tooth above throat plate. Screw (C) should be set to support feed dog after screw (D) has been loosened which secures feed dog in position.

When the feed dog is coming out of the throat plate, the top of the feed dog should be level with the top of the throat plate. Adjustment can be made by loosening nut (A, Fig. 10) and turn screw (B) clockwise to lower front of feed dog, counterclockwise acts the reverse. When properly set, retighten nut (A).

Right to left adjustment can be made by loosening screws (A, Fig. 11) and slightly move feed rocker (B) on feed rocker shaft (C) as required, then retighten screws. Check to ensure that feed rocker arm (D) does not bind after adjustment.
Forward or rearward centering of feed dog can be accomplished by loosening nut (E, Fig. 11), move feed rocker (B) as required and retighten nut.

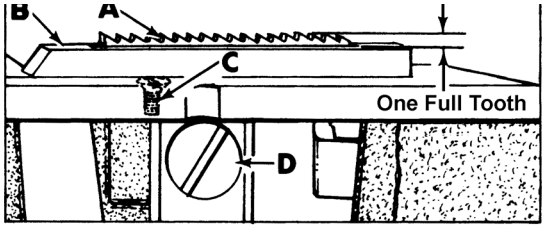


Fig 9

CHANGING STITCH LENGTH

Set the stitch to required length. This is accomplished by loosening lock nut (F, Fig. 11) 1/2 turn, (it has a left hand thread) on the end of the stitch regulating stud and turning stitch adjusting screw (G) located under the left end of the cloth plate in the head of the main-shaft (H), which is marked with "L" and "S". Turning the screw in a clockwise direction shortens the stitch (moves stitch regulating stud toward the "S") and turning it in a counterclockwise direction lengthens the stitch (moves stitch regulator stud toward the "L"). Retighten the lock nut securely. To prevent destructive damage to the feed drive bearing, key screw (J) must engage the "U" shaped key slot in ferrule (K).

The feed rocker assembly may require lubrication and repair after years of operation. This can be accomplished as follows: Loosen nut (E, Fig. 11) and remove nut (F). Remove feed rocker arm (D) from machine by rocking s'lightly. Loosen screws (A) and remove stop collar on right end of shaft (C). Shaft can now be withdrawn. Loosen Allen screw (L) and remove shaft (P), Now repack bearings.

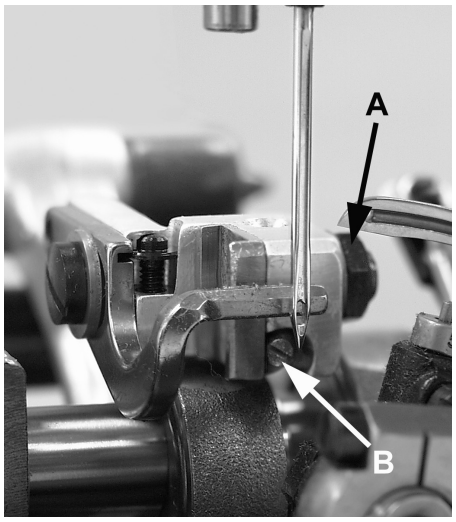


Fig 10

CHANGING STITCH LENGTH (CONTINUED)

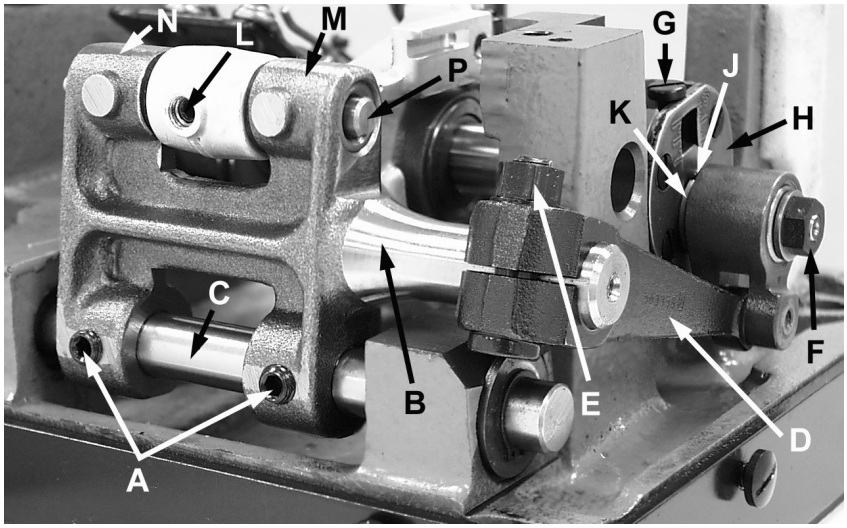


Fig 11

When packing bearings, parts must be clean and grease should be applied directly from the tube to avoid contamination. Tube of grease can be ordered under part No. 28604 P. Greased bearings are located at (N, M, Fig. 11). If grease sealed bearings are replaced, they should be pressed in flush with the casting. To assemble, start tapered end of shafts first, twisting slightly when entering the grease seals to prevent damage. Check for proper adjustment of feed dog as described under the "Feed Dog Settings". Also check to see that there is no binding at any point.

REAR NEEDLE GUARD

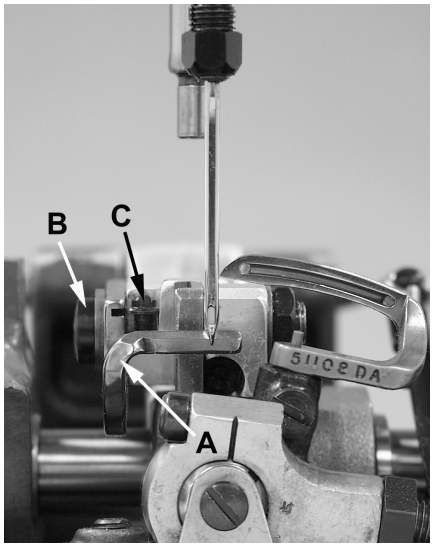


Fig 12

Rotate handwheel in operating direction to position looper point at the right hand side of needle. At this time the needle guard (A, Fig 12) should be at its extreme end of forward travel. Set the guard front to back to just touch the needle. Guard should be set as low as possible, yet have its vertical face approach above the needle point. To move the needle guard forward or backward, loosen the screw (B), move needle guard as required, and retighten screw. To raise or lower needle guard, loosen screw (B), and turn screw (C) clockwise to lower needle guard or counterclockwise to raise it. Retighten screw (B) after guard is properly set.

NOTE: Any change in stitch length will require a change in rear needle guard setting.

THREADING

Draw looper and needle threads into the machine and start operating on a piece of fabric. Refer to threading diagram (Fig. 1) for manner of threading this machine.

LOOPER THREAD TAKE-UP

Looper thread take-up (A, Fig. 13), is set at the Union Special factory, so that it is slighty advanced! The take-up should be set so that it starts to move to the back (away from the operator) just before the looper begins its movement from right to left. Loosen 2 screw B, to make the adjustment. Tighten screws securely after adjustment,.

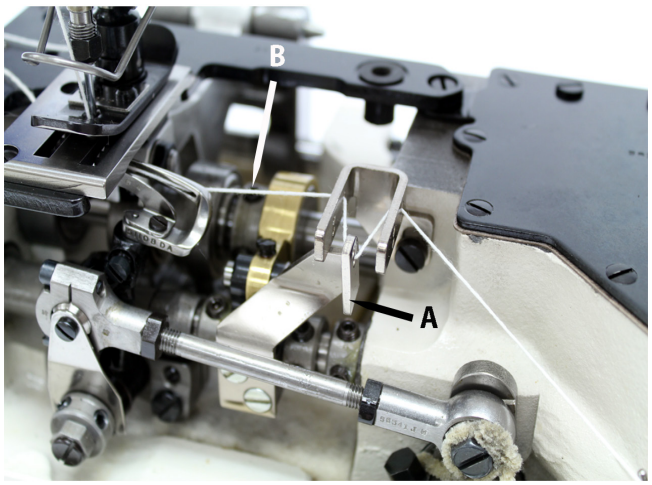


Fig 13

THREAD TENSIONS

Tension on the needle thread should be only sufficient to produce uniform stitches on the under surface of the fabric. Tension on the looper hread should be just sufficient to steady the thread.

PRESSER BAR HEIGHT

Height of presser bar (D, Fig. 14) is set correctly if it is possible to remove the presser foot when the foot lifter lever, located at the back of the machine and extending above the upper crank chamber cover is fully actuated (pulled to the right). There should be approximately 1/16 inch (1.6mm) clearance between lower surface of the presser bar connection and guide (E) and bottom surface of head opening in the bed when foot lifter lever is released and presser foot lying flat on the throat plate with feed dog below throat plate.

Adjustment can be made by turning handwheel to position needle bar at bottom of stroke. Loosen screw (F) and while holding presser foot down on throat plate, position presser bar connection and guide as required to attain specified clearance and retighten screw.

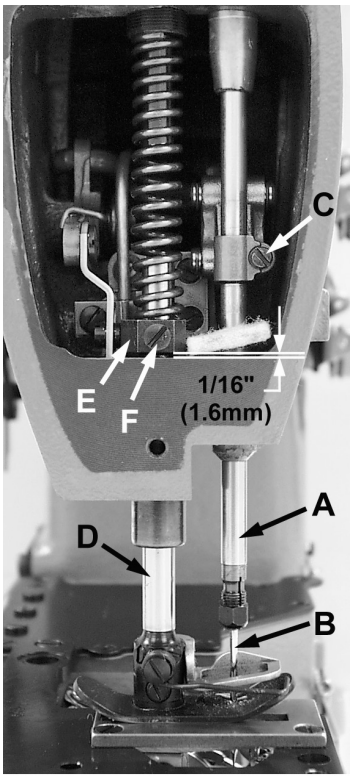


Fig 14

PRESSER FOOT PRESSURE

Regulate the presser spring regulating screw (A, Fig. 14) so that it exerts only enough pressure on the presser foot to feed the work uniformly when a slight tension is placed on the fabric. Turning it clockwise increases the pressure, counterclockwise acts the reverse.

SETTING NEEDLE THREAD GUIDE AND FRAME EYELET

Turn handwheel in operating direction until the needle bar reaches its lowest position. Set needle thread take-up wire (B, Fig. 15) so that its thread contact surface is even with the center of the needle bar thread eyelet (C). Lower this setting for a smaller needle thread loop, raise for a larger loop. Set needle thread frame eyelet (D) so that it is approximately 3/4 inch (19.1mm) above centerline of its attaching screw (Fig. 15).

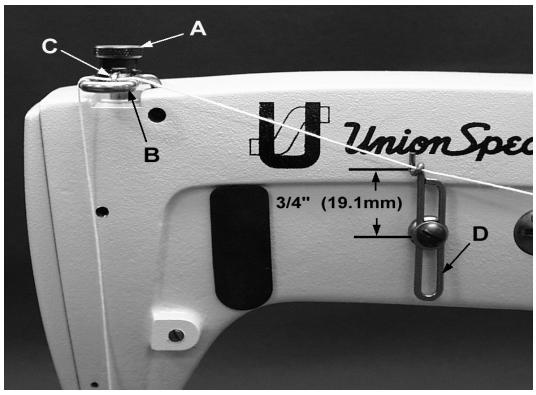


Fig 15

TORQUE REQUIREMENTS

Torque specifications given in this catalog are measured in inch-pounds or centimeter/kilograms. All straps and eccentrics must be tightened to 19-21 in. lbs. (22-24cm/kg) unless otherwise noted.

All nuts, bolts, screws, etc., without torque specifications must be ecured as tightly as possible, unless otherwise noted. Special torque specifications of connecting rods, links, screws, etc., are shown on illustrations.

SPECIAL INSTRUCTIONS

NEEDLE LEVER

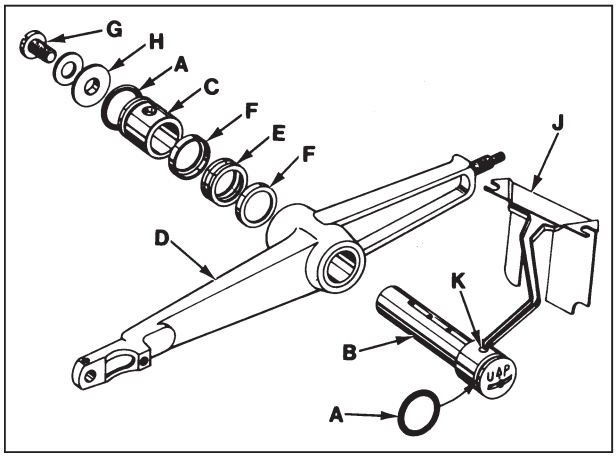


Fig 16

When adjusting needle lever or replacing related parts, follow instructions in sequence as listed:

1. Install "O" rings (A, Fig. 16) onto needle lever stud (B) and thrust collar (C).

2. With needle lever (D) in machine and positioned properly; insert stud (B) through hole in needle lever until its shoulder contacts the needle lever and the word "UP" on stud is in the upright position. While making sure no binding exists in the needle bar link, secure stud (B) with the front set screw in top of machine bed.

3. Install temper load ring (E) and compression cups (F) onto stud (B), then push ring and cups through opening in machine bed.

4. Install thrust collar (C) onto stud (B) being careful not to damage "O" ring. Compress components together by tighening screw (G) until washer (H) bottoms against stud (B). Secure stud (B) in position using the rear set screw in top of bed.

5. To check temper load ring for proper compression, remove screw (G) from stud (B) and loosen rear set screw in top of bed. Thrust collar (C) should spring out .003 - .007 inch (.08 .18mm). Compress load ring in reverse order, then tighten rear set screw.

6. With indented "UP" on stud (B) in upright position, install bearing oiler (J) so its hook sets in oil supply hole (K) of stud. When hook and stud are secured in their proper positions, the proper amount of oil will be channeled to stud for lubricating needle lever (D).

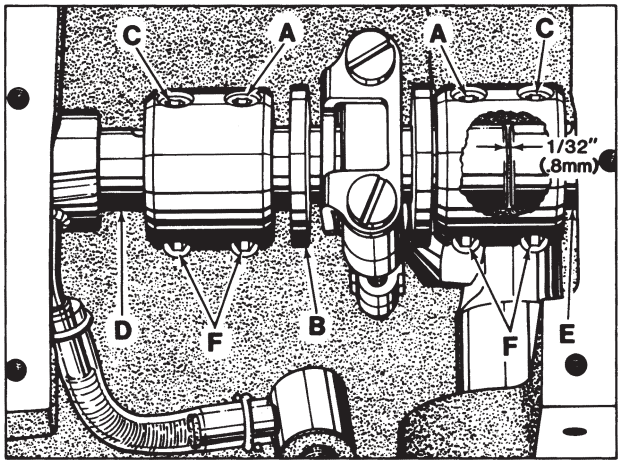


Fig 17

ALIGNING MAINSHAFT TO CRANKSHAFT

As viewed looking down from rear of machine, spot screws (A. Fig. 17) in the couplings must align with the spots in the looper drive crank (B) and set screws (C) must align with the flats on crankshaft (D) and mainshaft (E).

Mainshaft must be positioned laterally with .080 inch (2.0mm) clearance between the right side of its head and the bed .080" (2.0mm) casting as shown in Fig. 18.

Looper drive crank (B, Fig. 17) must be positioned laterally with 1/32 inch (.8mm) clearance between it and mainshaft (E) as shown in Fig. 17. Once these settings are made, it is very important that the coplings are tightened in the following sequence for best performance.

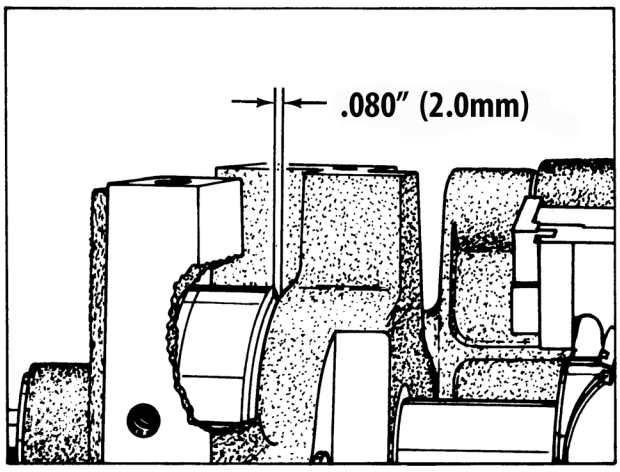


Fig 18

Tighten spot screws (A) temporarily, to the looper drive crank. Tighten set screws (C) temporarily, to the crankshaft and mainshaft. Torque screws (F) to 19 - 21 in. lbs. (22 - 24 cm/kg). Loosen spot screws (A) and set screws (C). Re-torque screws (F) to 19 - 21 in. lbs. (22 - 24 cm/kg), then torque screws (A and C) to 19 - 21 in. lbs. (22 - 24cm/kg).

The oil drip plate (A, Fig.19) located in the oil reservoir should be positioned with its tip in the recessed cut out in the bed casting, as far to the left as possible without touching. It has elongated mounting holes and can be adjusted by loosening (2) screws (B) in top of the oil reservoir back cover to position as required, retighten screws.

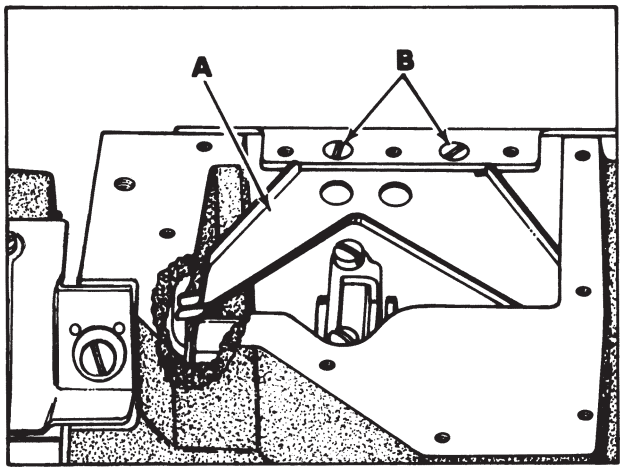


Fig 19

SETTING THE TAKE-UP DRIVE COLLARS

With looper rocker frame pushed to the left, push collar A (Fig. 20) tight against the washer and tighten the two screw. There should be no shake or bind when collar is in correct position. Set a distance of .080" (2.0mm) between the right edge of the looper rocker frame and the left edge of collar B and tight the 2 collar screws. Move the cast off link assembly the left against collar B and then push collar C to the left against Cast off link and tighten the 2 screws..
The should be no shake or bind in the tak-up drive when set correctly.

Note: Refer to page 11, Looper Thread Take-up, for setting the timing of the tak-up.

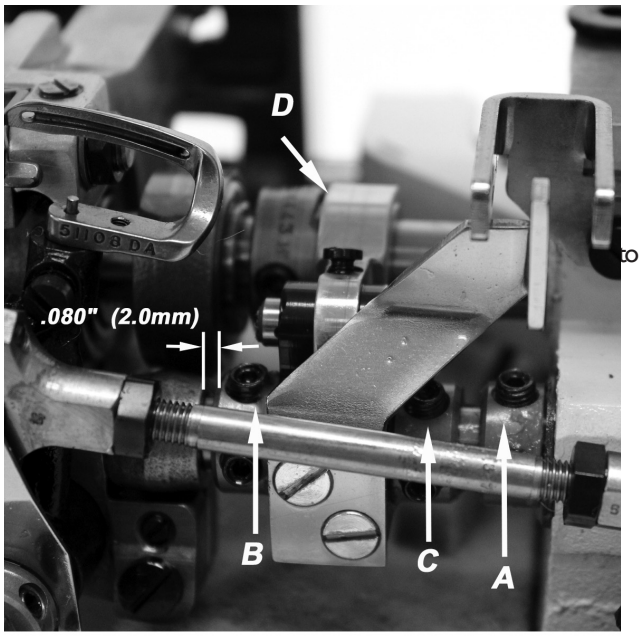


Fig 20

Before this machine left the factory it was adjusted and inspected to give you the utmost satisfaction and durability at all times. If, however, the machine has been readjusted and is not sewing properly, see the chart below for suggestions which may prove beneficial to you.

SKIPPED STITCHES

Condition	Causes	Cures
Needle loop too small	Frame needle thread guide set too low	Raise frame needle thread guide slightly.
	Needle thread stretched at bottom of stroke, loop not formed till stretch relieved	Lower frame thread eyelet and/or reduce needle tension
	Needle thread creased because it is too tight and needle is hot	Use oversize ball eye needle, lower frame needle eyelet, reduce tension
	Needle thread pinched by needle guard, collapsing needle loop	Drop needle guard slightly
	Thread twisting around needle	Keep needle loop as small as possible, keep needle thread tension to a minimum. Use a left twist thread
	Needle thread sticking in needle grooves, due to heat	Use lubricant on thread
	Needle does not rise enough to form needle loop properly	Increase looper gauge 1/64 to 1/32 inch
Looper misses needle loop as presser foot is coming off a seam	Material is not held down in front of seam and is flagging	See if presser bar is sticking
	Needle deflecting towards operator	Use sharp point needle
Needle loop formed properly but brushed out of the way .by looper	Needle bar set too high	Lower needle bar slightly
Looper misses needle loop when operator is trying to match seams or ends	Needle deflecting toward operator who may be holding back on material while matching seams or ends of garment	Do not hold back excessively on material. Properly adjust feed and maintain a proper feeding pressure on foot so operator does not hold back
Needle misses triangle on looper thread side	Looper thread too loose, not making a good triangle	Increase looper thread tension
	Needle being deflected to the rear by burr on needle point or due to operator pulling on material, or needle glancing off when coming on a seam	Do not pull material at the back. Use a sharp needle to stop needle from glancing off seam. Check needle for burr

NOTE: More detailed information concerning the double locked stitch (stitch type 401) is available under "Stitch Formation, Type 401".

ORDERING REPAIR PARTS

ILLUSTRATIONS

This catalog has been arranged to simplify ordering repair parts. Exploded views of various sections of the mechanism are shown so that the parts may be seen in their actual position in the machine. On the page opposite the illustration will be found a listing of the parts with their part numbers, descriptions and the number of pieces required in the particular view being shown.

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

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

48	29105AK	Crank Assembly, looper driving lever	1
49	22587K	Screw, bearing cap ,(upper)	2
50	56343C	Guide, ball joint	1
51	56343E	Splasher, oil	1
52	22559A	Screw, bearing cap (lower)	2

It will be noted in the above example that the eccentric, ball stud, and bearing are not listed. The reason is that replacement of these parts individually is not recommended, so the complete sub-assembly should be ordered.

At the back of the book will be found a numerical index of all the parts shown in this book. This will facilitate locating the illustration and description when only the part number is known.

IDENTIFYING PARTS

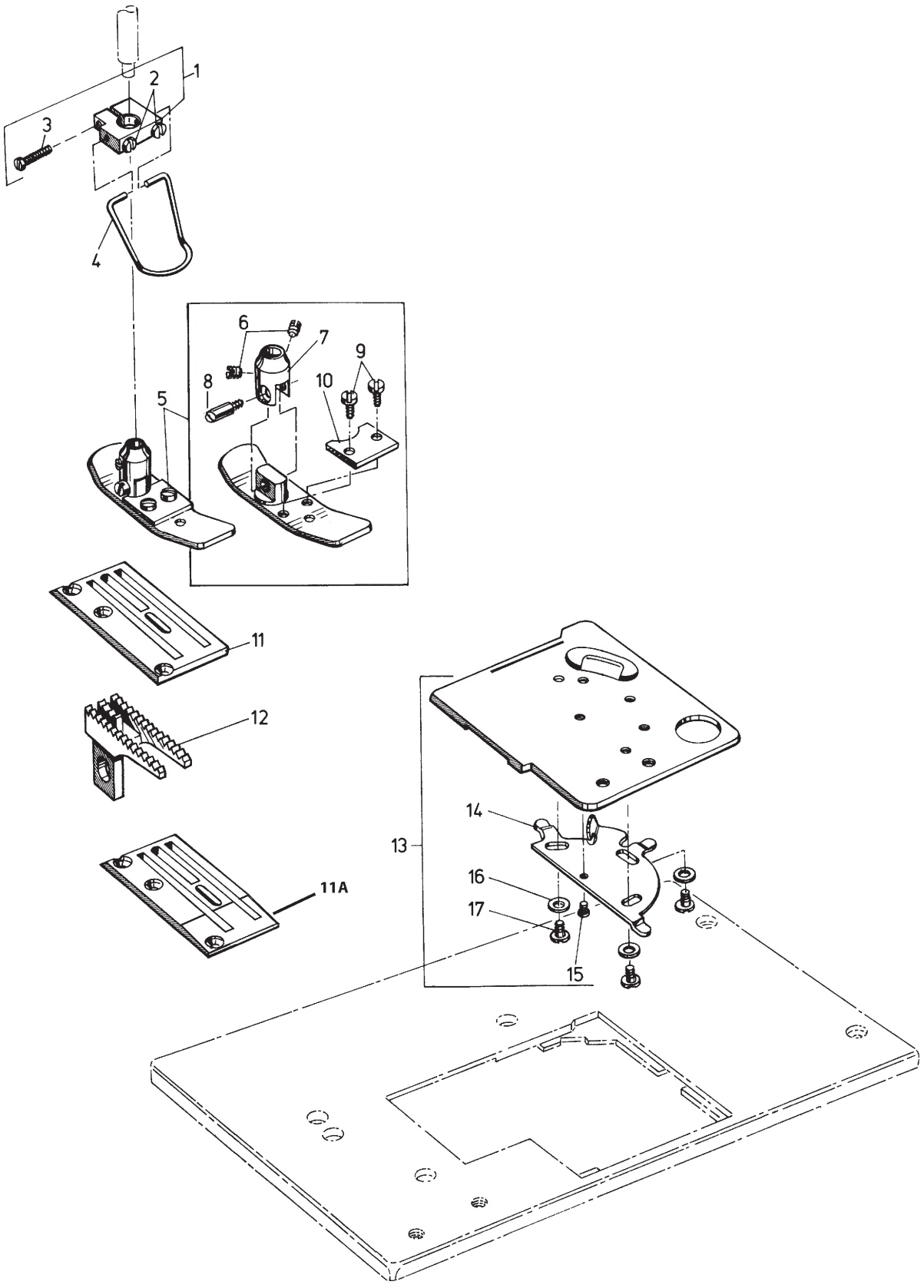
Where the construction permits, each part is stamped with its part number. On some of the smaller parts, and on those where construction does not permit, an identification letter is stamped in to distinguish the part from simil'ar ones.

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

IMPORTANT! ON ALL ORDERS, PLEASE INCLUDE PART NAME AND STYLE OF MACHINE FOR WHICH PART IS ORDERED.

USE GENUINE REPAIR PARTS

Success in the operation of these machines can be secured only with genuine UNION SPECIAL repair parts as furnished by the Union Special Corporation, its subsidiaries and authorized distributors. They are designed according to the most approved scientific principles, and are made with utmost precision. Maximum efficiency and durability are assured.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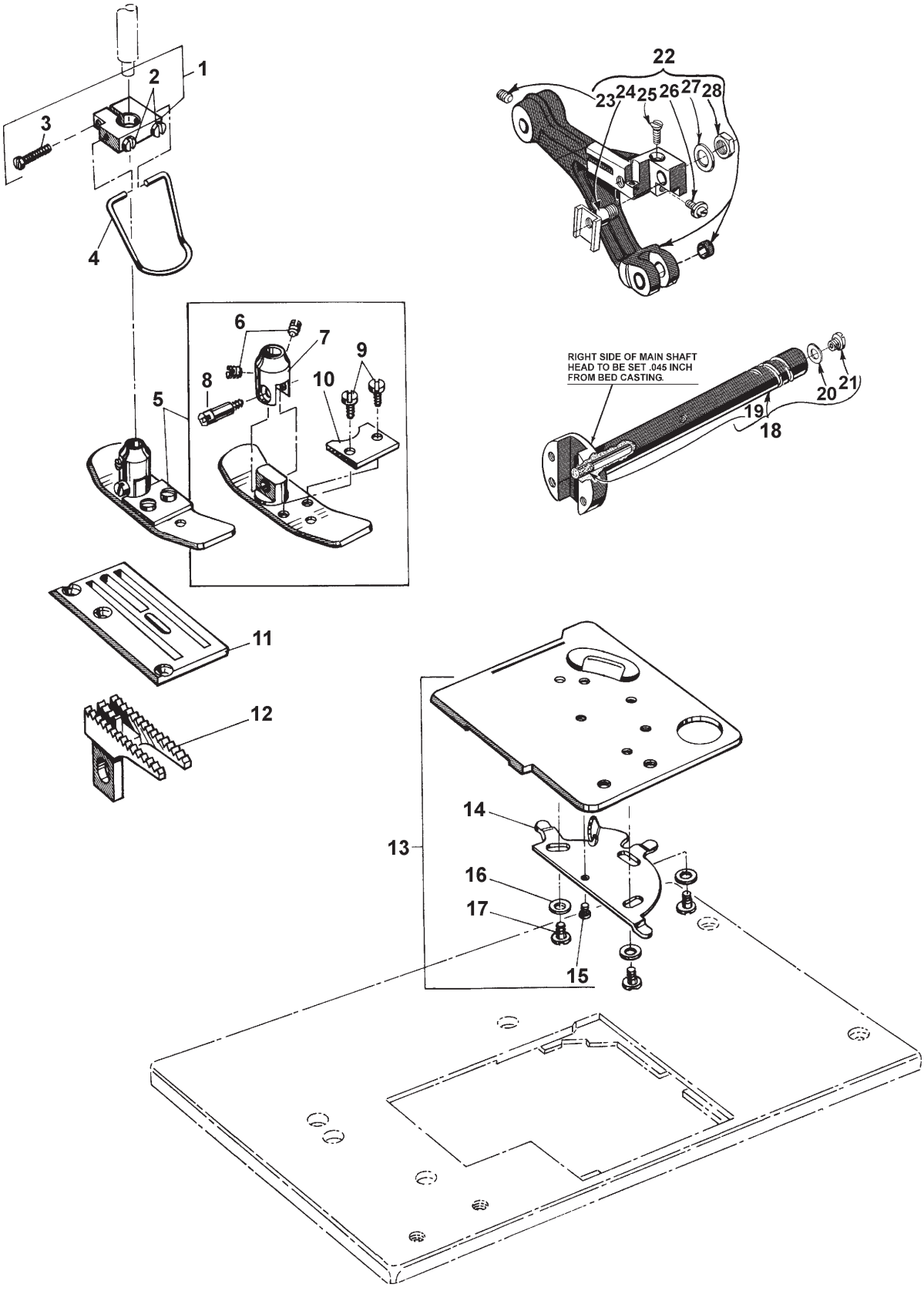
UNIQUE PARTS FOR 56100MZ27BT & MZ38BT

Ref. No.	Part No.	Description	Amt. Req.
1.	G52888B	Bracket, for Finger Protector	1
2.	77L	Screw	2
3.	22747A	Screw	1
4.	99682C	Finger Protector	1
5.	G198X	Presser Foot	1
6.	88	Screw	2
7.	65XD	Presser Foot Shank	1
8.	22845J	Shoulder Screw	1
9.	25B	Screw	2
10.	199	Needle Guard	1
11.	195X	Throat Plate, for style 56100MZ27BT, MZ34BT	1
11A.	6624L	Throat Plate, for style 56100MZ38BT	1
12.	6605L	Feed Dog	1
13.	56381WZ	Cloth Plate Cover	1
14.	51281AC	Cloth Plate Cover Spring	1
15.	22760A	Screw	1
16.	35772H	Spring Washer	3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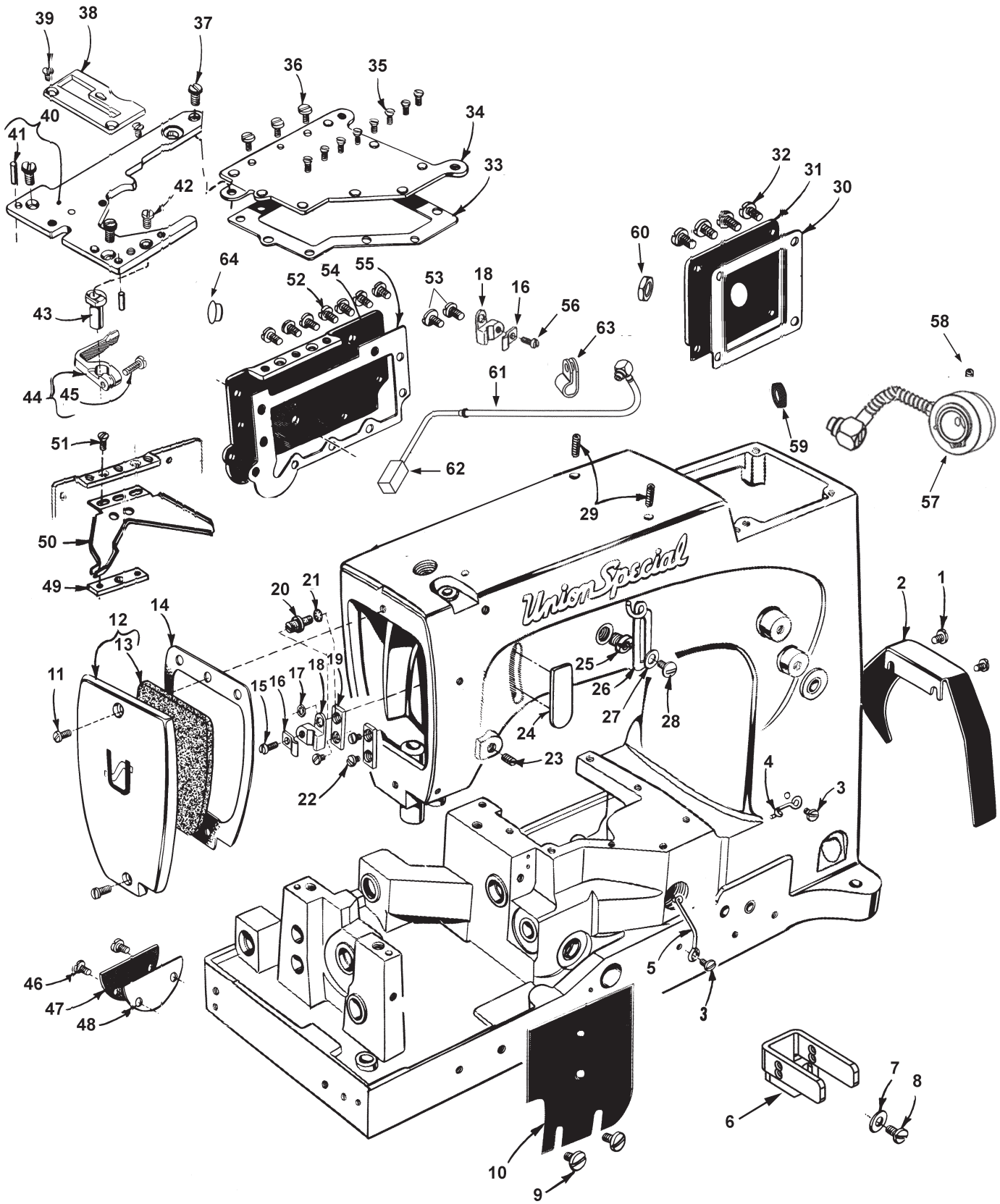
RIGHT SIDE OF MAIN SHAFT
HEAD TO BE SET .045 INCH
FROM BED CASTING.

UNIQUE PARTS FOR 56100MZ34BT

Ref. No.	Part No.	Description	Amt. Req.
1.	G52888B	Bracket, for Finger Protector	1
2.	77L	Screw	2
3.	22747A	Screw	1
4.	99682C	Finger Protector	1
5.	G198X	Presser Foot	1
6.	88	Screw	2
7.	65XD	Presser Foot Shank	1
8.	22845J	Shoulder Screw	1
9.	25B	Screw	2
10.	199	Needle Guard	1
11.	195X	Throat Plate, for style 56100MZ27BT, MZ34BT	1
12.	6605L	Feed Dog	1
13.	56381WZ	Cloth Plate Cover	1
14.	51281AC	Cloth Plate Cover Spring	1
15.	22760A	Screw	1
16.	35772H	Spring Washer	3
17.	22845B	Screw	3
18.	56122PF132	Mainshaft	1
19.	K74804	Felt Wick	1
20.	56322B	Gasket	1
21.	22891B	Screw	1
22.	56334N	Feed Bar	1
23.	22651CB4	Screw	1
24.	56334L	Holder feed dog	1
25.	22637P24	Screw, height adjusting	1
26.	22863C	Screw, holder adjusting	1
27.	6042A	Washer	1
28.	258A	Nut	1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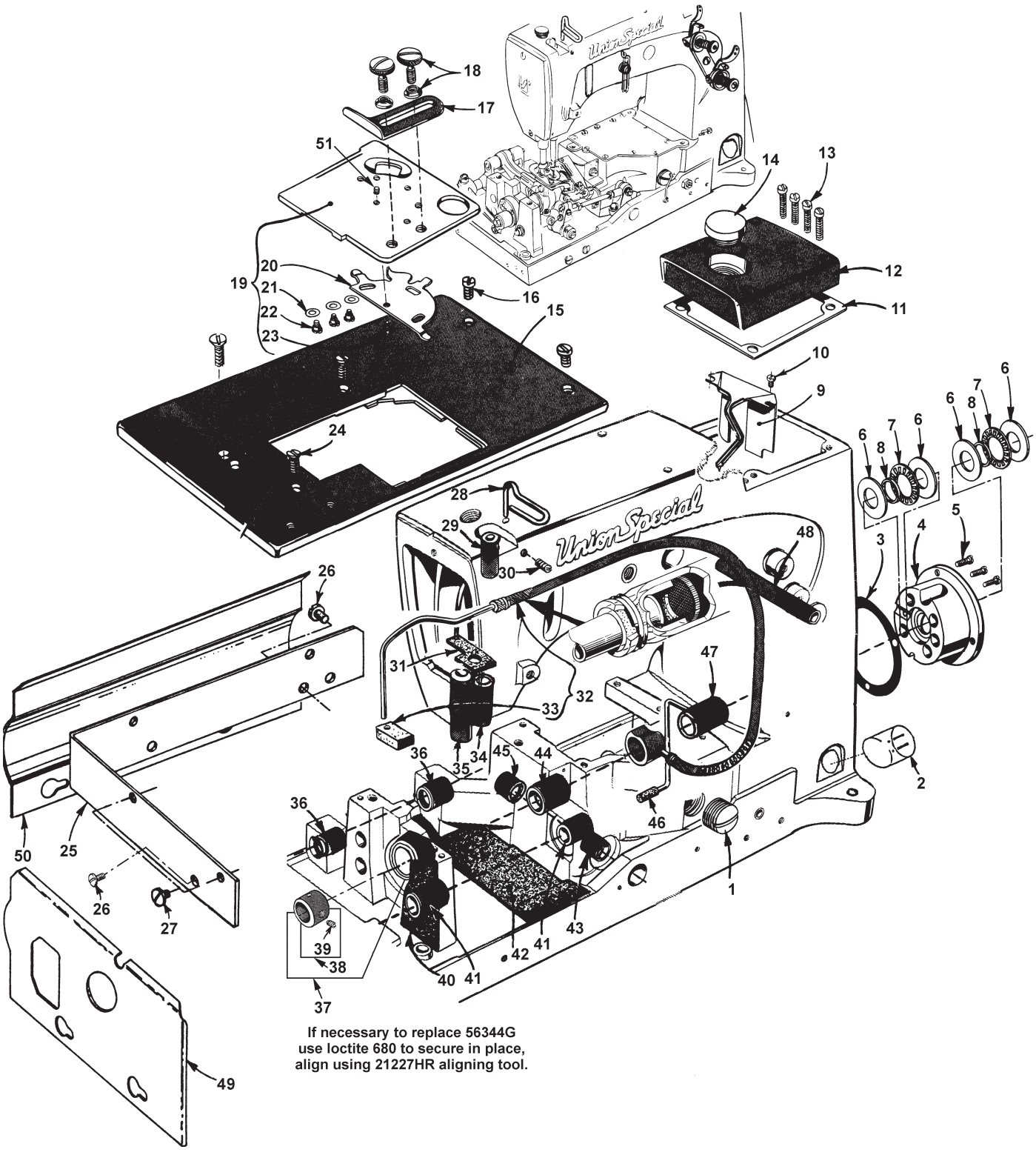
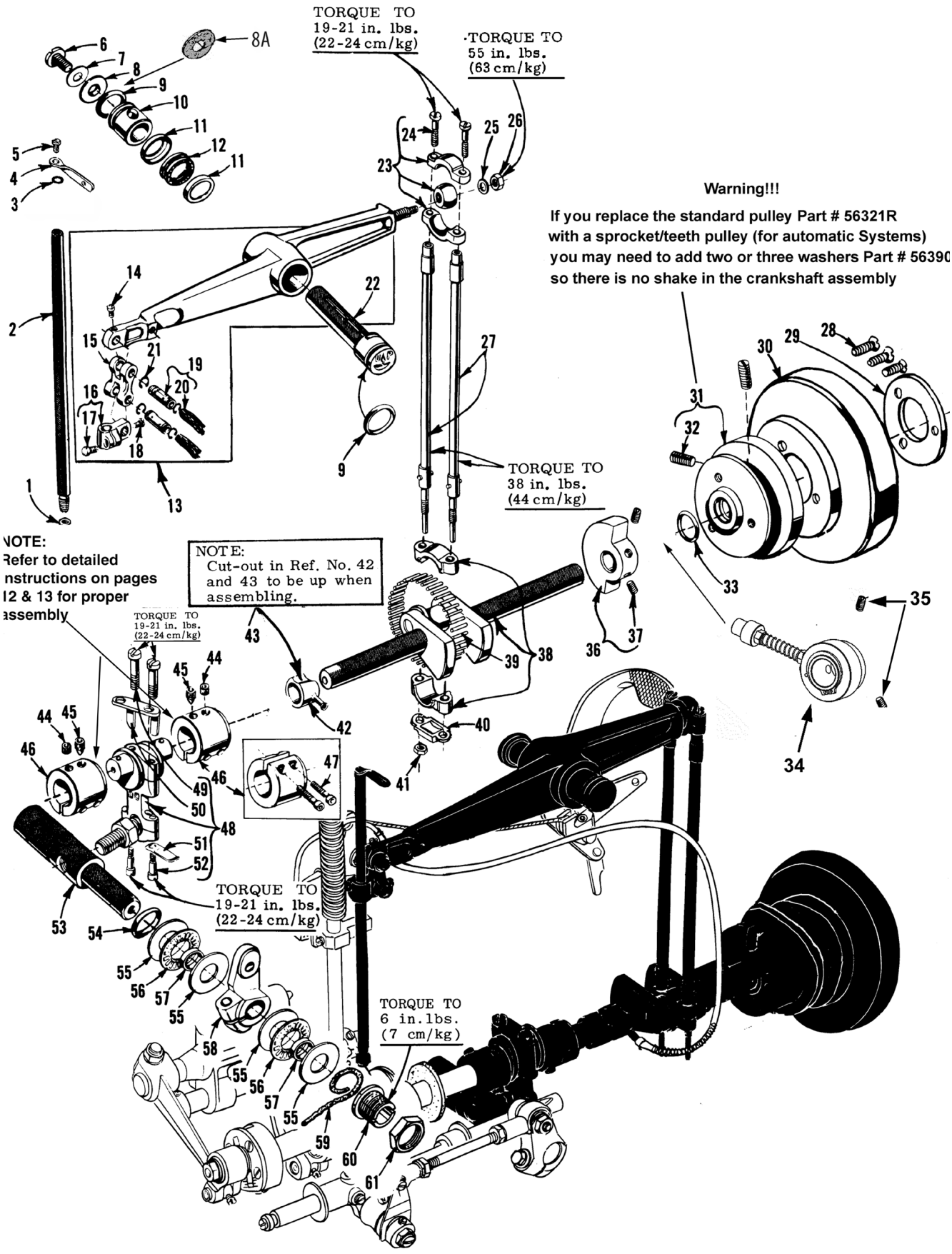
MAIN FRAME, CAST-OFF PLATE, MISCELLANEOUS COVERS

Ref. No.	Part No.	Description	Amt. Req.
1.	22829	Screw	2
2.	21375CJ	Guard, belt	1
3.	98A	Screw	2
4.	52A	Eyelet, frame looper thread	1
5.	52958B	Eyelet, frame looper thread	1
6.	G51204	Thread guide	1
7.	21657E	Washer	1
8.	22528	Screw	1
9.	25S	Screw	2
10.	51482A	Guard	1
11.	22569C	Screw	2
12.	56382Z	Cover, head	1
13.	56382A	Felt	1
14.	56382AT	Gasket	1
15.	22585	Screw	1
16.	56393D	Clamp, head oil tube	1
17.	7947	Nut	1
18.	56393C	Block, head oil tube mounying	1
19.	35731A	Plate, presser bar connection guide	2
20.	51294R	Screw	1
21.	660-342	Lockwasher	1
22.	22513	Screw	3
23.	95	Screw, plug	1
24.	660-694	Gasket, needle lever eyelet	1
25.	22889A	Screw, adapter	1
26.	539	Eyelet, frame needle thread	1
27.	20	Washer	1
28.	22848	Screw	1
29.	22894E	Screw, needle lever thrust collar and stud	2
30.	56382AX	Gasket	1
31.	56382DB	Cover, lower crank chamber	1
32.	22548	Screw	4
33.	56382AW	Gasket	1
34.	56382G	Cover, top oil reservoir	1
35.	22524	Screw	8
36.	22585A	Screw	3
37.	22839	Screw, throat plate support	3
38.	-----	Throat Plate, for part numbers see pages 16-19	1
39.	87	Screw	2
40.	56180B	Support, throat plate	1
41.	51280J	Pin, dowel	2
42.	22570A	Screw	1
43.	56168	Holder, needle guiard (Optional)	1
44.	51125E	Guard, needle (Optional)	1
45.	22782A	Screw (Optinal)	1
46.	22570A	Screw	2
47.	56382J	Cover, looper drive shaft	1
48.	56382AV	Gasket	1
49.	56382Y	Block, clamping	1
50.	56382AB	Plate,oil drip	1
51.	22524	Screw	1
52.	22848	Screw	7
53.	93	Screw for attaching oil return pump	2
54.	56382AA	Cover, back oil reservoir	1
55.	56382AU	Gasket	1
56.	22562A	Screw	1
57.	56193D	Oil Return Pump Assembly	1
58.	22894W	Screw	2
59.	RM2747-9	Lock washer	1
60.	11638M	Nut	1
61.	56193U	Oil return tube assembly	1
62.	666-214	Felt	1
63.	998-358E	Clamp. oil tube	1
64.	TA0750404R0	Plug	1


If necessary to replace 56344G
use loctite 680 to secure in place,
align using 21227HR aligning tool.

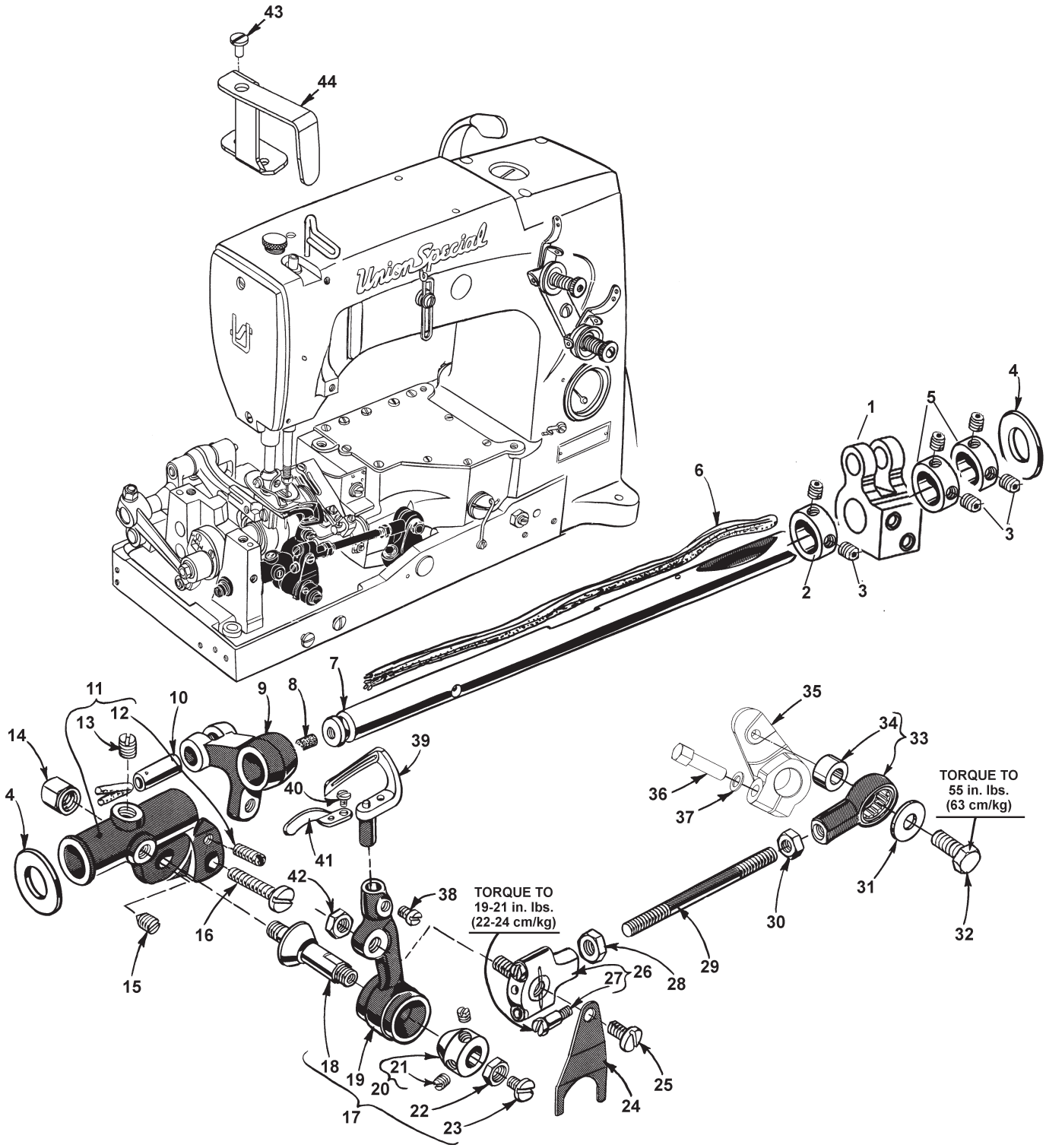
MAIN FRAME, BUSHINGS, OIL GAUGE AND MISCELLANEOUS OILING PARTS

Ref. No.	Part No.	Description	Amt. Req.
1.	22539R	Screw, plug	1
2.	51-902BLK	Gauge, oil sight	1
3.	56390E	Gasket	1
4.	57890B	Housing, crankshaft bushing, includes bushing	1
5.	22569B	Screw	3
6.	56390H	Washer, thrust	4
7.	660-665	Bearing, needle, thrust	2
8.	56390J	Ring, pilot	2
9.	56382AC	Plate, oil and baffle	1
10.	90	Screw	2
11.	56382AY	Gasket	1
12.	56382DC	Cover, upper crank chamber	1
13.	22541C	Screw	4
14.	660-1002	Plug, oil filter	2
15.	56301W	Cloth Plate	1
16.	22839C	Screw	2
17.	24X	Guide, edge,	1
18.	25	Screw	2
19.	56381WZ	Cover, cloth plate,	1
20.	51281AC	Spring	1
21.	35772H	Washer, spring	3
22.	22760A	Screw	3
23.	22845B	Screw	1
24.	80	Screw	3
25.	G51382BA	Bracket, for shields	1
26.	22848	Screw	3
27.	99295	Screw	3
28.	56170	Wire, needle thread take-up	1
29.	51154E	Bushing, needle bar (upper)	1
30.	95	Screw	1
31.	56393W	Pad, felt	1
32.	GR-56393T	Pump Assembly, oil, head	1
33.	56393L	Felt	1
34.	56154	Bushing, needle bar (lower)	1
35.	51257AA	Bushing, presser bar (lower)	1
36.	57836B	Bushing, feed rocker shaft	2
37.	56344G	Bearing Assembly	1
38.	---	Not sold seperately	1
39.	22894T	Screw	1
40.	666-259	Felt	1
41.	50-895BLK	Bushing, looper rocker shaft	2
42.	56193A	Felt, machine base (front)	1
43.	52942W	Bushing, looper drive lever shaft (front)	1
44.	56190	Bushing, mainshaft (intermediate)	1
45.	57842B	Bushing, looper drive lever shaft (rear)	1
46.	35897BV	Filter, oil intake	1
47.	56390G	Bushing, mainshaft (inner right)	1
48.	21657XA	Bushing, tension release lever shaft	1
49.	G51381BA	Oil Shield, left	1
50.	G51381BD	Oil Shield, rear	1
--	21227HR	Aligning Tool, for replacing 56344G bearing assembly (not shown)	1


TORQUE TO
19-21 in. lbs.
(22-24 cm/kg)
TORQUE TO
55 in. lbs.
(63 cm/kg)
Warning!!!
If you replace the standard pulley Part # 56321R
with a sprocket/teeth pulley (for automatic Systems)
you may need to add two or three washers Part # 56390
so there is no shake in the crankshaft assembly
TORQUE TO
38 in. lbs.
(44 cm/kg)
NOTE:
Refer to detailed
nstructions on pages
12 & 13 for proper
assembly
NOTE:
Cut-out in Ref. No. 42
and 43 to be up when
assembling.
TORQUE TO
19-21 in. lbs.
(22-24 cm/kg)
TORQUE TO
19-21 in. lbs.
(22-24 cm/kg)
TORQUE TO
6 in.lbs.
(7 cm/kg)

CRANKSHAFT, NEEDLE LEVER AND LOOPER DRIVING PARTS

Ref. No.	Part No.	Description	Amt. Req.
1.	56	Nut	1
2.	51217C	Needle Bar	1
3.	27-435BLK	Washer, needle bar eyelet	1
4.	56358	Eyelet, needle bar thread	1
5.	22768	Screw	1
6.	22586R	Screw	1
7.	51250F	Gasket	1
8.	51250D	Washer	1
8A	56382AK	Gasket	1
9.	660-625	"O" Ring	2
10.	56350E	Colar, needle lever thrust	1
11.	56350F	Cup, compression	2
12.	660-614	Ring, temper load	1
13.	29348AF	Lever Assembly, needle	1
14.	77	Screw	1
15.	56354D	Link, connecting	1
16.	51254K	Connection, needle bar	1
17.	22562A	Screw	1
18.	22564	Screw	1
19.	52336A	Pin, link	2
20.	WO3	Yarn	2
21.	660-215	Ring, retaining	4
22.	56350D	Stud, needle lever	1
23.	29066R	Ball Joint, needle lever (upper)	1
24.	22559G	Screw	2
25.	51216N	Washer	1
26.	51216P	Nut	1
27.	56316	Connecting Rod, needle lever	2
28.	22574	Screw	3
29.	61321L	Plate, retaining	1
30.	57821E	Handwheel, for styles 56100MZ27BT, MZ34BT, MZ38BT	1
31.	56321R	Pulley, for styles 56100MZ27BT, MZ34BT, MZ38BT	1
32.	22894AB	Screw	2
33.	660-202	"O" Ring	1
34.	56193D	Oil Return Pump	1
35.	22894W	Screw	2
36.	51247	Counterweight	1
37.	22894J	Screw	2
38.	29476LN	Crankshaft Sub-Assembly	1
39.	51216M625	Bearing, needle, .0625 inch (1.588mm) diameter	28
-	51216M626	Bearing, needle, .0626 inch (1.590mm) diameter	28
-	51216M627	Bearing, needle, .0627 inch (1.593mm) diameter	28
40.	56316C	Guide, connecting rod	1
41.	12934A	Nut	1
42.		Pump, oil, head (See Ref. No. 32 Page 23)	1
43.		Pump, oil, base (See Ref. No. 56 Page 21)	1
44.	22894C	Screw, set	2
45.	22894D	Screw, spot	2
46.	56343F	Coupling	2
47.	22653L8	Screw	2
48.	29105AK	Crank Assembly, looper driving lever	1
49.	22587K	Screw, bearing cap (upper)	2
50.	56343C	Guide, ball joint	1
51.	56343E	Splasher, oil	1
52.	22559A	Screw, bearing cap (lower)	2
53.	52942AA	Shaft, looper drive rocker	1
54.	660-202	"O" Ring	1
55.	56390H	Washer, thrust	4
56.	660-665	Bearing, needle thrust	2
57.	56390J	Ring, pilot	2
58.	56342K	Lever, looper drive	1
59.	CL21	Wick, oil	1
60.	52942AC	Screw, thrust synchronizing adjusting	1
61.	56342D	Nut	1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TORQUE TO
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(63 cm/kg)
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(22-24 cm/kg)
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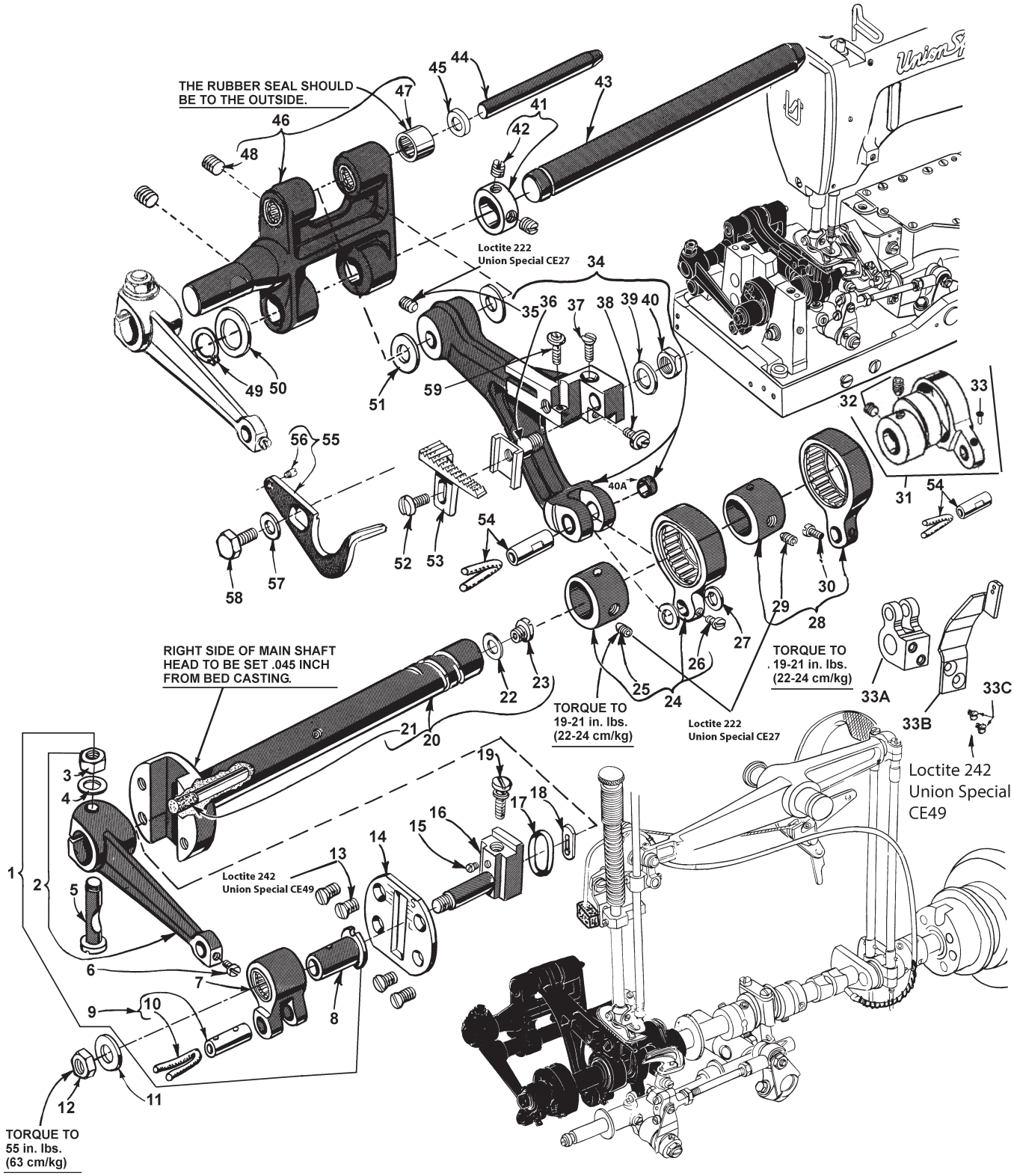
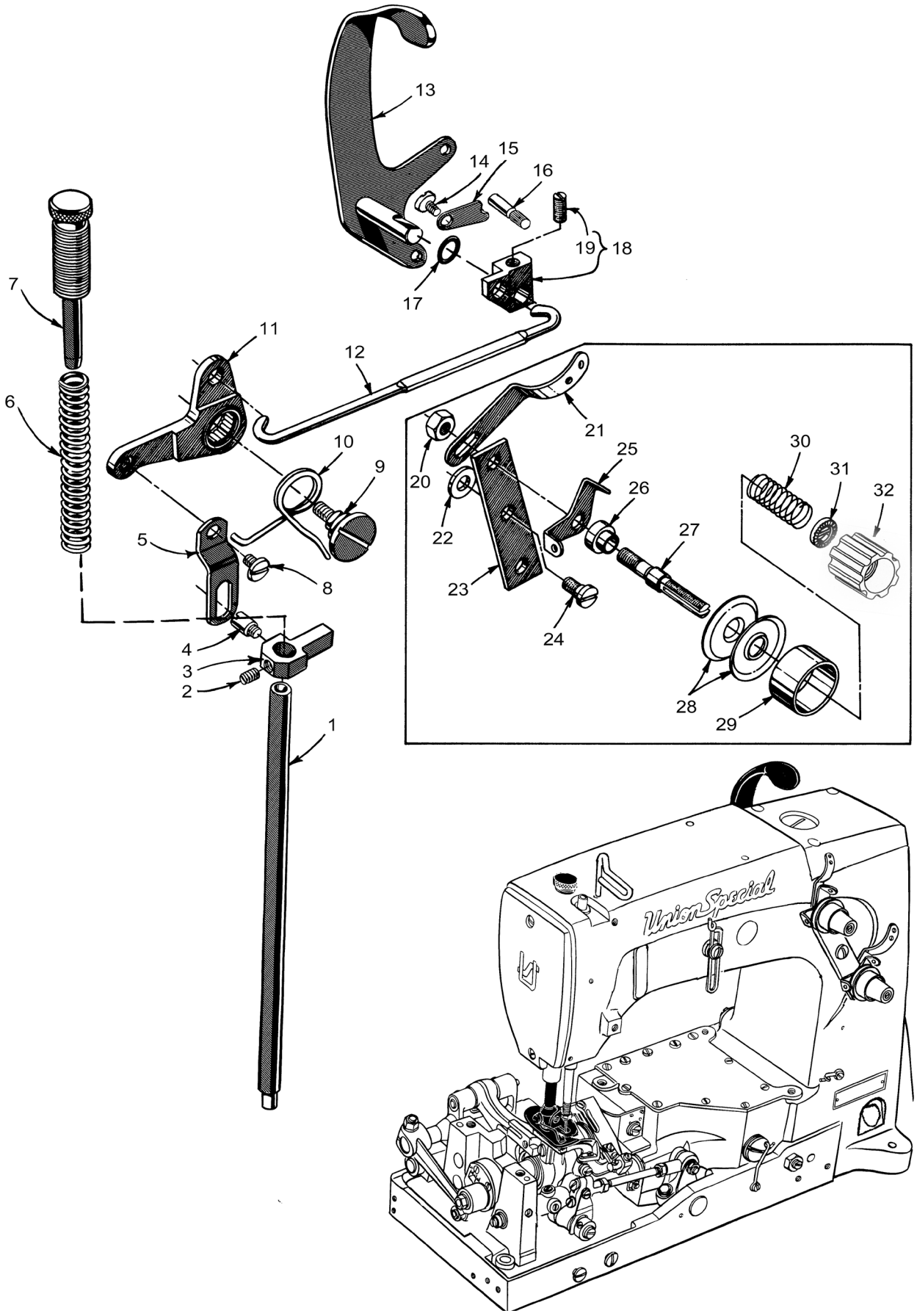
LOOPER ROCKER AND CONNECTING ROD PARTS

Ref. No.	Part No.	Description		Amt. Req.
1.	G561145A	Cast off link		1
2.	482C	Collar		1
3.	22580D	Screw		6
4.	51244L	Washer, thrust		2
5.	482C	Collar		1
6.	WO3	Yarn	as required	
7.	56344H	Shaft, looper rocker		1
8.	CO67E	Cork		1
9.	56344B	Arm, looper rocker shaft		1
10.	51236J	Pin, link		1
11.	56344C	Frame, looper rocker		1
12.	719	Screw, stop		1
13.	98	Screw, set		1
14.	51246	Nut		1
15.	96	Screw, spot		1
16.	22874	Screw, lock		1
17.	29192V	Rocker Assembly, looper		1
18.	51745	Stud, rocker cone		1
19.	56313	Rocker, looper, marked "S"		1
20.	15465F	Cone, looper rocker		1
21.	22894W	Screw		2
22.	258A	Nut, check		1
23.	22829	Screw		1
24.	56393J	Oiler, looper connecting rod ball joint (left)		1
25.	87U	Screw		1
26.	57841	Ball Joint, looper connecting rod (left)		1
27.	22729C	Screw		2
28.	269	Nut, left hand thread		1
29.	35741A	Connecting Rod, looper		1
30.	C18	Nut, right hand thread		1
31.	20	Washer		1
32.	627	Screw		1
33.	29476LV	Bearing Assembly, looper connecting rod (right)		1
34.	56341F	Ferrule		1
35.	56342K	Lever, looper drive		1
36.	22882C	Screw		1
37.	51242M	Washer		1
38.	73	Screw, looper		1
39.	51108DA	Looper		1
40.	73A	Screw		1
41.	51110D	Guard, looper needle		1
42.	C18	Nut		1
43.	22585A	Screw		1
44.	33795D	Needle Bar Guard		1


THE RUBBER SEAL SHOULD BE TO THE OUTSIDE.
Loctite 222 Union Special CE27
RIGHT SIDE OF MAIN SHAFT HEAD TO BE SET .045 INCH FROM BED CASTING.
TORQUE TO 19-21 in. lbs. (22-24 cm/kg)
Loctite 222 Union Special CE27
TORQUE TO 19-21 in. lbs. (22-24 cm/kg)
Loctite 242 Union Special CE49
Loctite 242 Union Special CE49
TORQUE TO 55 in. lbs. (63 cm/kg)

MAINSHAFT AND FEED DRIVING PARTS

Ref. No.	Part No.	Description	Amt. Req.
1.	29476ZJ	Feed Rocker Arm and Feed Crank Link Assembly	1
2.	56335S	Feed Rocker Arm Assembly	1
3.	55235E	Nut	1
4.	6042A	Washer	1
5.	55235D	Stud, locking	1
6.	77	Screw	1
7.	56336N	Link, feed crank	1
8.	56336C	Ferrule	1
9.	51236J	Pin, link	1
10.	666-149	Yarn	1
11.	21657E	Washer	1
12.	269	Nut, left thread	1
13.	22525A	Screw	4
14.	51122C	Plate, mainshaft head	1
15.	22798C	Screw	1
16.	56336	Stud, feed crank, marked "A"	1
17.	660-269B	Ring, quad	1
18.	56336D	Insert, feed crank stud	1
19.	22543C	Screw, stitch regulating	1
20.	56122PF125	Mainshaft, for Styles MZ27BT, MZ38BT	1
-	56122PF132	Mainshaft, for Style MZ34BT	1
21.	51-173BLK	Plug, oil	1
22.	56322B	Gasket	1
23.	22891B	Screw	1
24.	29476NM140	Eccentric Assembly, feed lift	1
25.	22894AA	Screw	1
26.	77	Screw	1
27.	39543N	Washer, feed bar thrust	2
28.	29476NM096	Eccentric Assembly, looper avoid	1
29.	22894AA	Screw	1
30.	77	Screw	1
31.	29133M	Take-up drive eccentric assembly	1
32.	22894C	Screw	1
33.	22768	Screw	1
33A.	G56145A	Cast off link	1
33B..	G51157J	Thread take-up	1
33C.	95110	Screw	2
34.	56334N	Feed Bar	1
35.	22651CB4	Screw	1
36.	56334L	Holder, feed dog	1
37.	22637P24	Screw, height adjusting	1
38.	22863C	Screw, holder adjusting	1
39.	6042A	Washer	1
40.	258A	Nut	1
40A.	57834G	Bushing	2
41.	56335D	Collar, feed rocker shaft	1
42.	98	Screw	2
43.	56335L	Shaft, feed rocker	1
44.	56334B	Shaft, feed bar	1
45.	56384	Seal	2
46.	56335G	Rocker, feed	1
47.	FP660-1009	Bearing, needle, with seal	2
48.	22651CD4	Screw	2
49.	660-438	Ring, retaining	1
50.	41391	Washer	1
51.	61341J	Washer, feed bar	2
52.	22528	Screw, feed dog	1
53.	51105G	Feed Dog, for part numbers see pages 16-21	1
54.	51236J	Pin, link	1
55.	56125	Guard, rear	1
56.	22801	Screw	1
57.	35032H	Washer	1
58.	18-715	Screw	1
59.	22834A	Screw	1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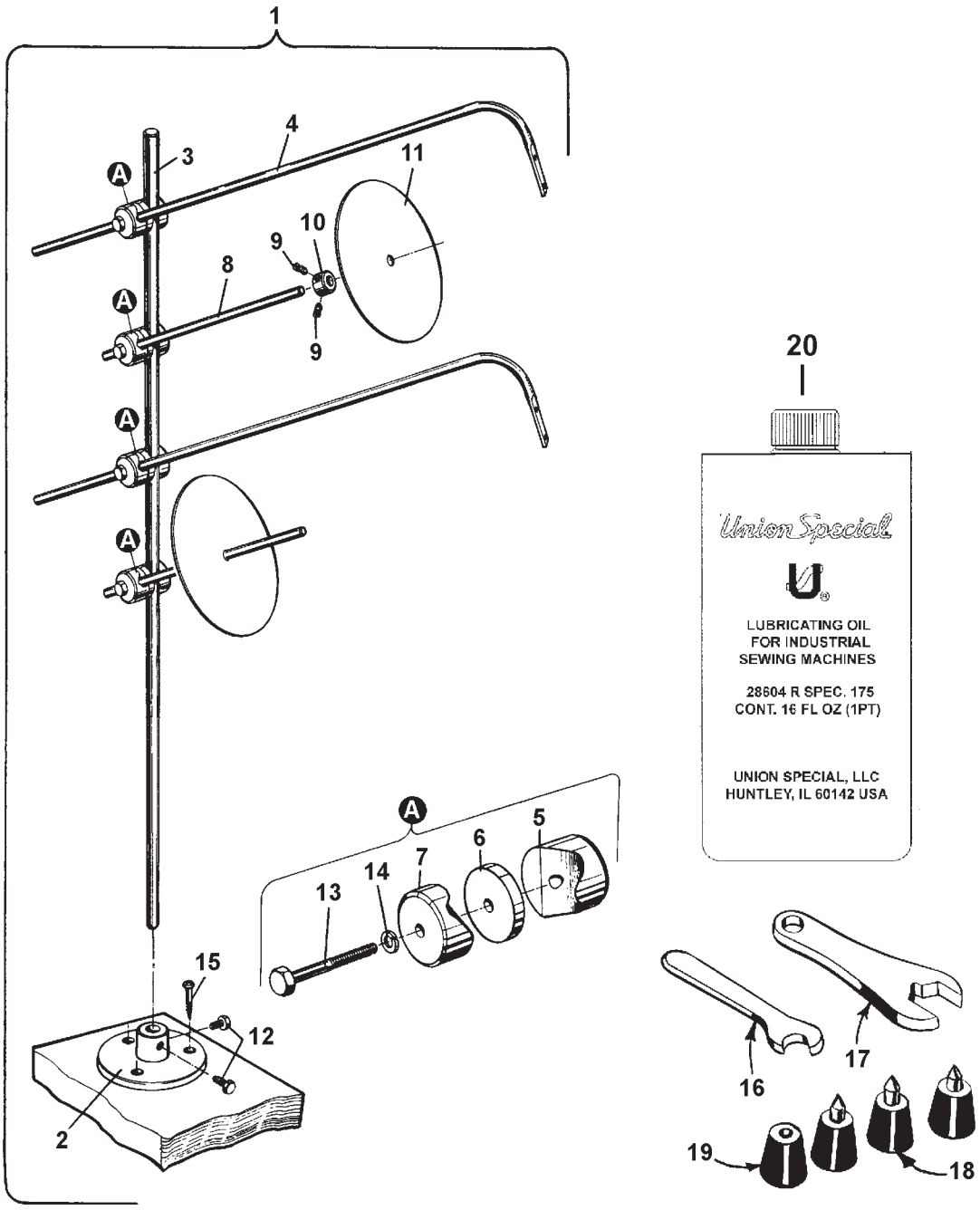
Union Special

PRESSER FOOT, LIFTER LEVER AND THREAD TENSION PARTS

Ref. No.	Part No.	Description	Amt. Req.
1.	51257K	Bar, presser	1
2.	22596F	Screw	1
3.	51257M	Connection and Guide, presser bar	1
4.	402	Screw	1
5.	56383A	Link, lifter lever	1
6.	53787	Spring, presser	1
7.	56356	Regulator, presser spring	1
8.	22758C	Screw	1
9.	22557G	Screw	1
10.	56383D	Spring	1
11.	56383AA	Bell Crank, presser foot lifter lever	1
12.	56383AB	Connecting Rod, presser foot lifter lever	1
13.	51183B	Lever, presser foot lifter	1
14.	22758C	Screw	1
15.	51183C	Latch, lever	1
16.	50-703BLK	Pin, stop	1
17.	660-207	"O" Ring	1
18.	53783N	Lever, internal, presser foot lifter	1
19.	22537	Screw	1
20.	43266	Nut	1
21.	51491C	Guide, lead-in	2
22.	80557	Washer, spacer	1
23.	52892	Support, tension post	1
24.	22872	Screw	1
25.	51192G	Eyelet, tension post	2
26.	51192B	Ferrule, tension post	2
27.	56392E	Post, tension	2
28.	109	Disc, tension	4
29.	W56392F	Shield, thread tension spring	2
30.	51292F14	Spring, needle thread tension	1
	51292F2	Spring, looper thread tension	1
31.	39592AK	Ferrule, tension spring	2
32.	C50092S	Nut, tension	2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Union Special
LUBRICATING OIL
FOR INDUSTRIAL
SEWING MACHINES
28604 R SPEC. 175
CONT. 16 FL OZ (1PT)
UNION SPECIAL, LLC
HUNTLEY, IL 60142 USA
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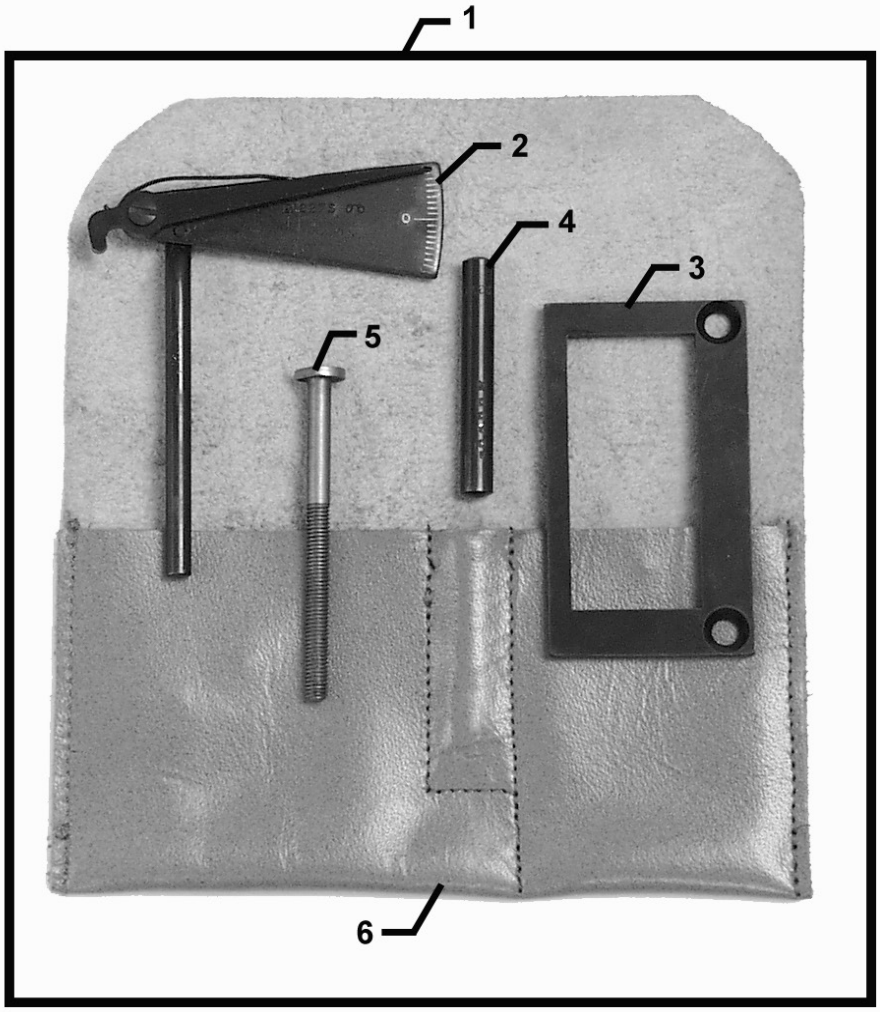
THREAD STAND AND ACCESSORIES

Ref. No.	Part No.	Description	Amt. Req.
1.	93065B2	Thread Stand, (2 cones) for styles 56100MZ27BT, MZ38BT.....	1
2.	93065BA	Base	1
3.	93065BC	Thread Stand Rod	1
4.	93065BE	Thread Guide	2
5.	93065BG	Clamp Washer, for 16mm	4
6.	93065BJ	Clamp Washer, for 12mm	4
7.	93065BL	Washer	4
8.	93065BD	Spool Pin	2
9.	531	Set Screw	4
10.	G41041B	Collar	2
11.	90805K	Spool Seat Disc	2
12.	95003	Hex. Head Cap Screw	2
13.	95068A	Hex. Head Cap Screw	4
14.	96201	Locking Ring	4
15.	90561Q	Wood Screw	3
16.	21388	Wrench, 3/8 inch (9.5mm) open end	1
17.	116	Wrench, 9/32 inch (7.1mm) open end	1
18.	51295B	Isolator	3
19.	51295A	Isolator	1
20.	28604R	Oil, 16 fl. oz. Spec. 175, (not shown)	1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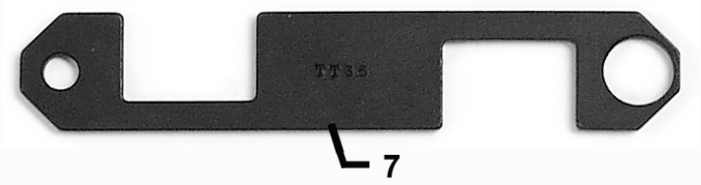
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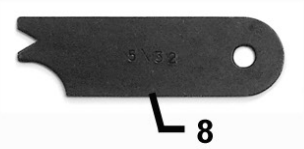
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GAUGES
(EXTRA SEND AND CHARGE)

Ref. No.	Part No.	Description	Amt. Req.
1.	TT34	Syncronization Gauge Set	1
2.	21227S	Indicator	1
3.	21227T	Plate	1
4.	21227U	Pin	1
5.	99271	Screw	1
6.	21227AB	Leather Case	1
7.	TT35	Gauge	1
*8.	21225-5/32	Looper Gauge	1
9.	12288403	Tweezers	1

*May also be purchased as TT33
Which is a full set of looper gauges.

NUMERICAL INDEX OF PARTS

NOTES

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