CATALOG NO.

PT0303-GR

First Edition

# INSTRUCTIONS AND ILLUSTRATED PARTS LIST

STYLES

56100MB
56100PB
56100TB

## CLASS 56100 - ADVANCED SERIES, BAG SEAMING MACHINES

Finest Quality

Union Special®
INDUSTRIAL SEWING EQUIPMENT

RoHS 2002/95/EC

04-03-09

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

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PRINTED 2006 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

56100MB 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 recommended 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.

56100PB 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.

56100TB 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 401-EFb-1 or 401-SSp-1. Maxmum recommended speed 6000 R.P.M.

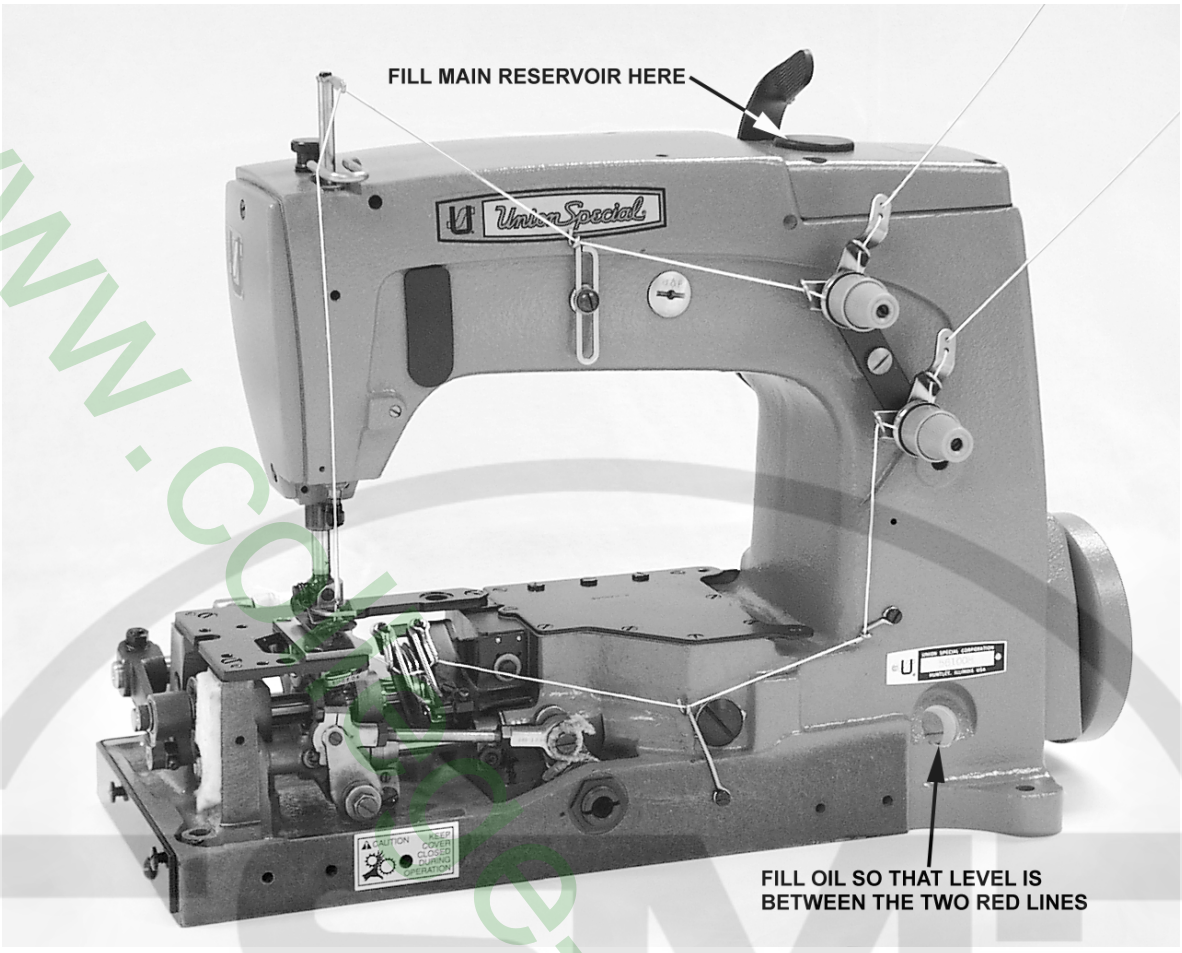
## NEEDLES

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 Style 56100MB, PB, and TB 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 - 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.

To have needle orders promptly arid accurately filled, an empty package,a sample needle, or the type and size number should be forwarded. Use description on label. A complete order would read: "1000 Needles, Type 144GS, Size 200/080".



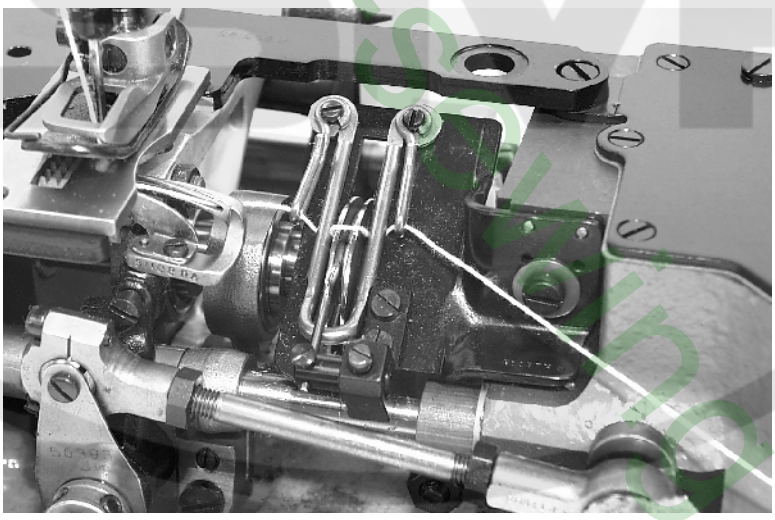



Fig 1

## THREADING AND OILING DIAGRAM

Thread machine as indicated above. The looper threading has been enlarged for clarity.

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


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.

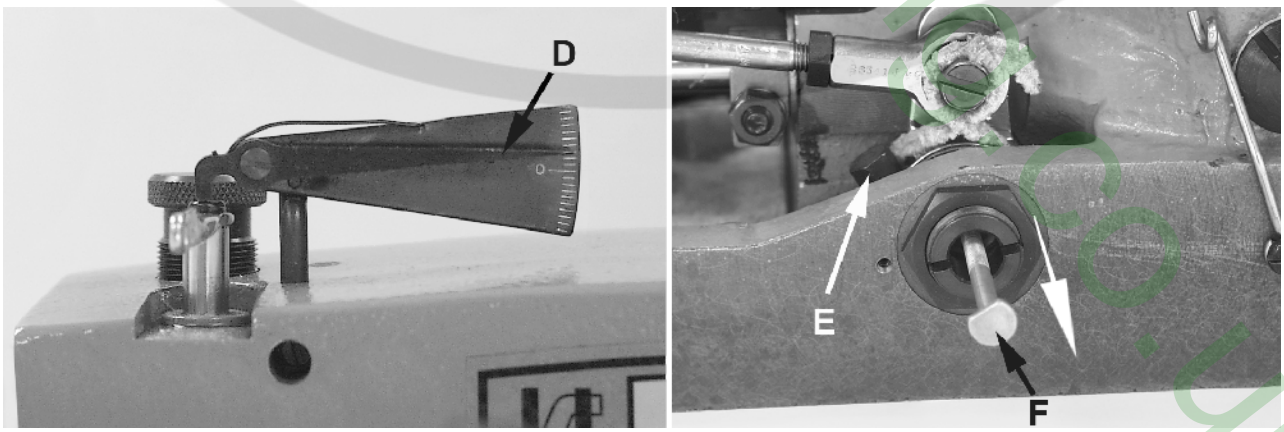



Fig 3A

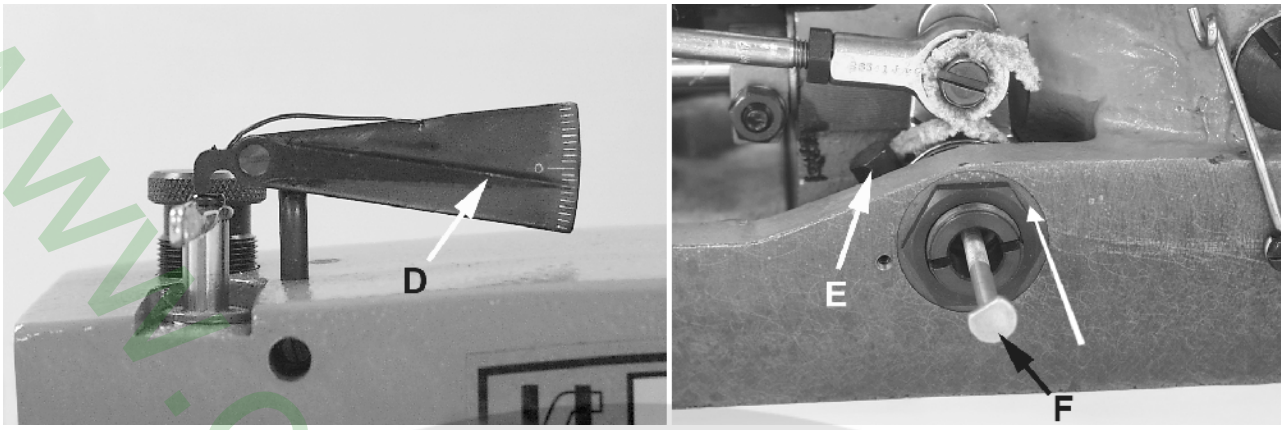



Fig 3B

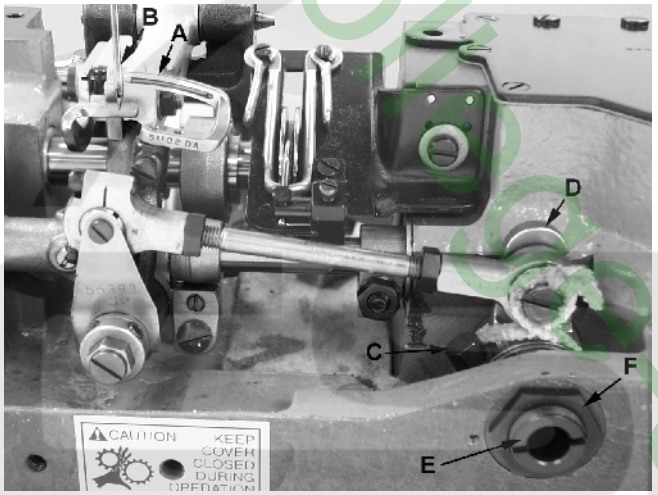



Fig 4

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 handwheel 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.

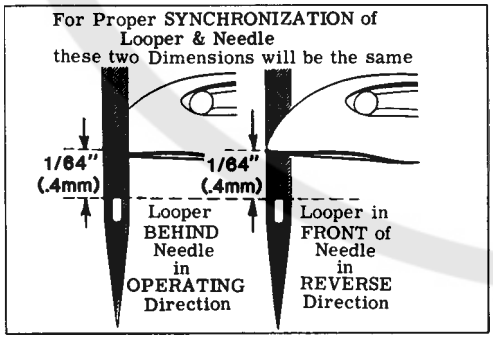



Fig 4A

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

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.

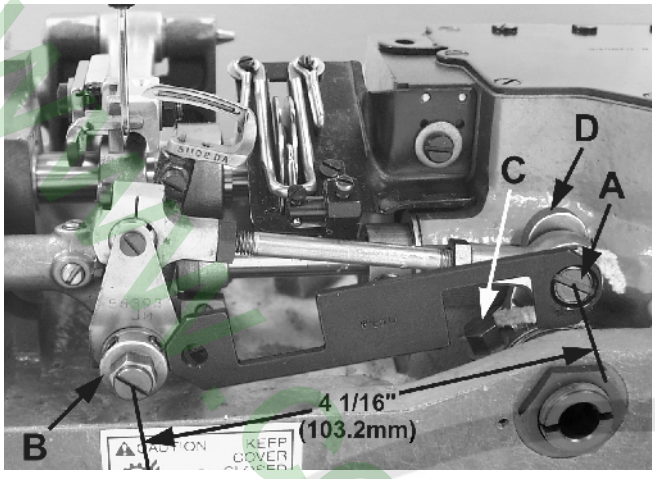



Fig 5

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

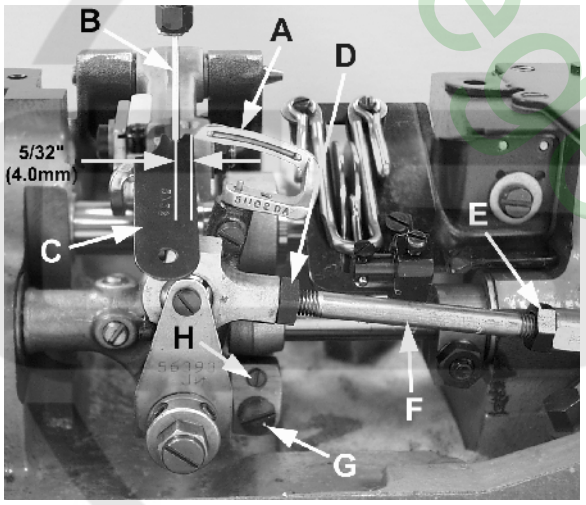



Fig 6

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.

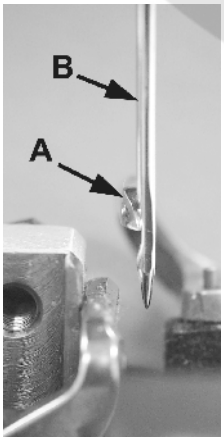



Fig 7

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.

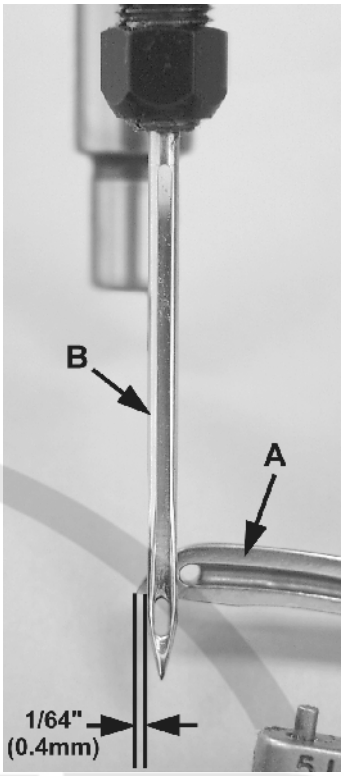



Fig 8

## 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.

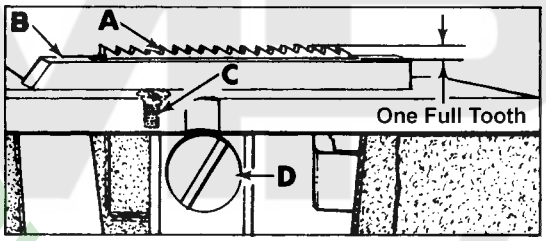



Fig 9

## 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 mainshaft (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.

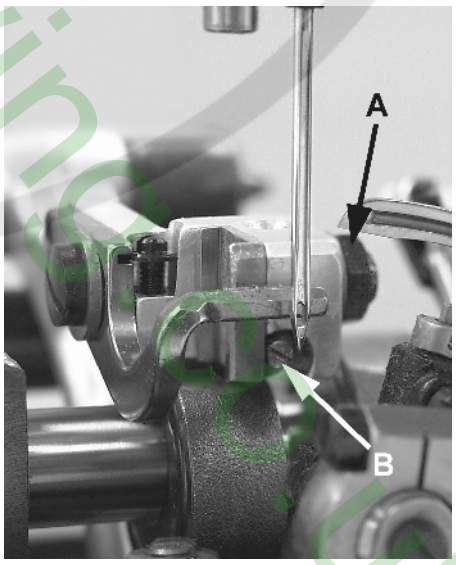



Fig 10

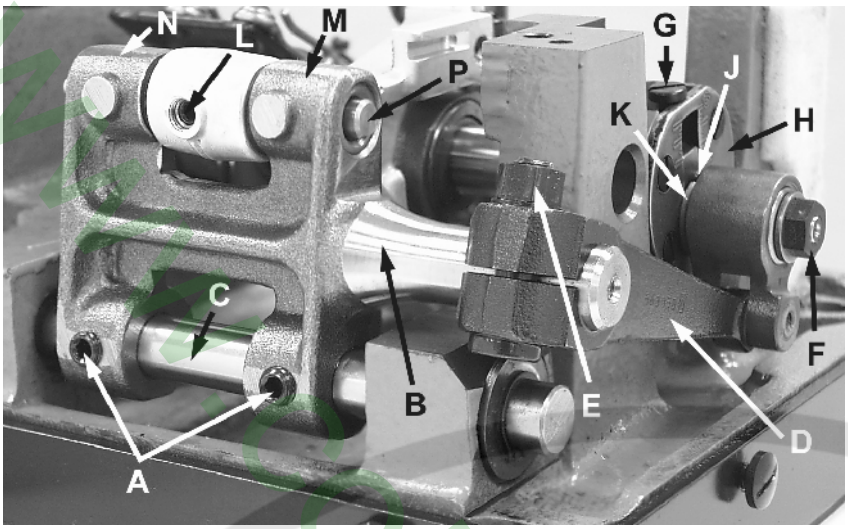



Fig 11

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.

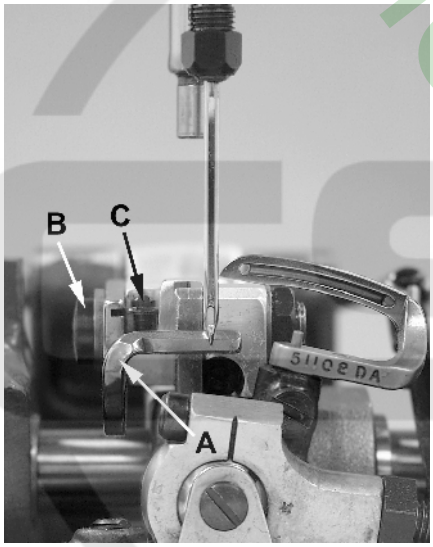



Fig 12

## REAR NEEDLE GUARD FOR STYLE 56100MB

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.

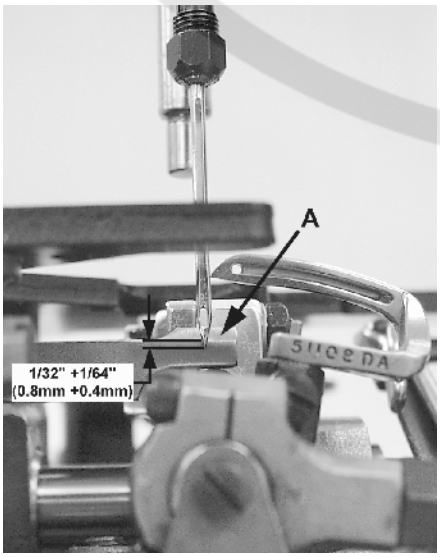



Fig 12A

## REAR NEEDLE GUARD FOR STYLES 56100PB, TB

With the looper tip entering the scarf of the needle, set the guarding surface of needle guard (A, Fig 12A) to touch but not deflect the needle. The point of the needle should be 1/32" +1/64" (0.8mm +0.4mm) below the guarding surface.

## 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.

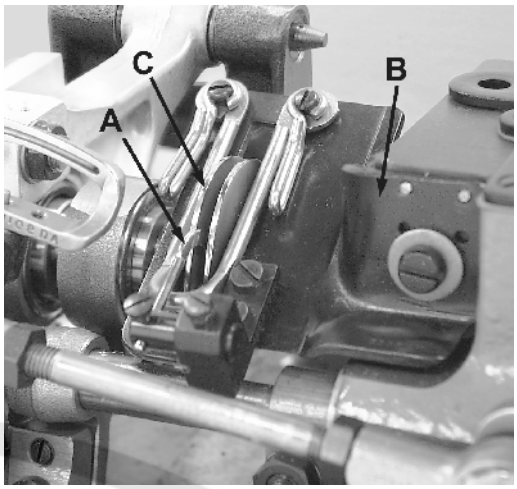


Fig 13

## LOOPER THREAD CAST-OFF WIRE

Looper thread cast-off wire (A, Fig. 13) located on the take-up shield (B) controls the amount of slack thread in the system and can be moved to any position. It should be set laterally so that it is midway between the two discs of take-up (C) and the tip parallel with the discs.

It is usually set toward the take-up to almost the limit of its slot so that it barely clears the highest point of the take-up. The height and lateral adjustment of the retainer affects the control of looper thread as looper moves to the left. Ordinarily it will be set in approximately a horizontal position. More looper thread is given to the stitch when the retainer is raised and set towards the take-up. However, if the retainer is raised too high, the looper thread triangle may be wiped under the blade of the looper, causing traingle skips or pulled down stitches. This can be checked by observing the action of the looper thread as the looper moves to the left.

## 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 thread should be just sufficient to steady the thread.

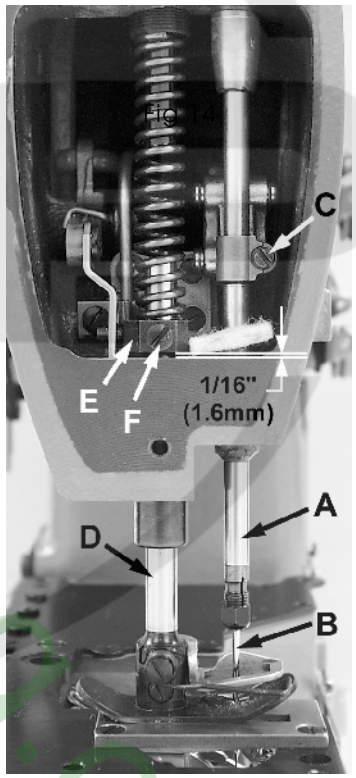


Fig 14

## 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.

## 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

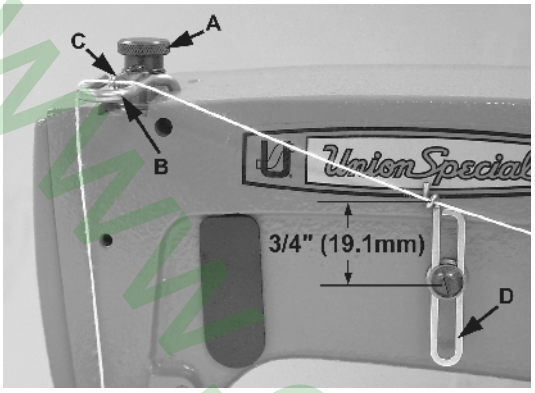



Fig 15

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).

## 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 secured as tightly as possible, unless otherwise noted. Special torque specifications of connecting rods, links, screws, etc., are shown on part illustrations.

## SPECIAL INSTRUCTIONS

### NEEDLE LEVER

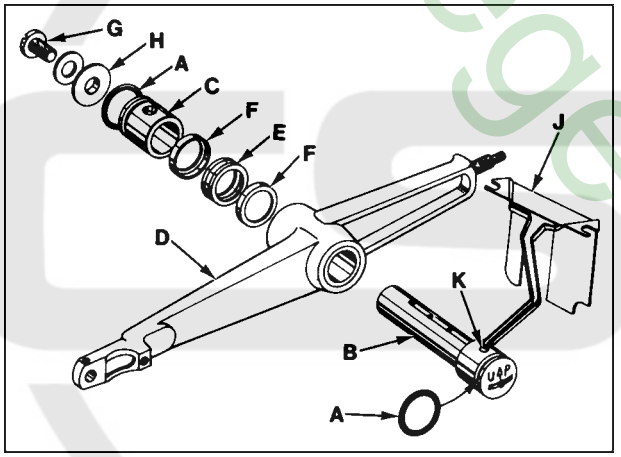



Fig 16

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.

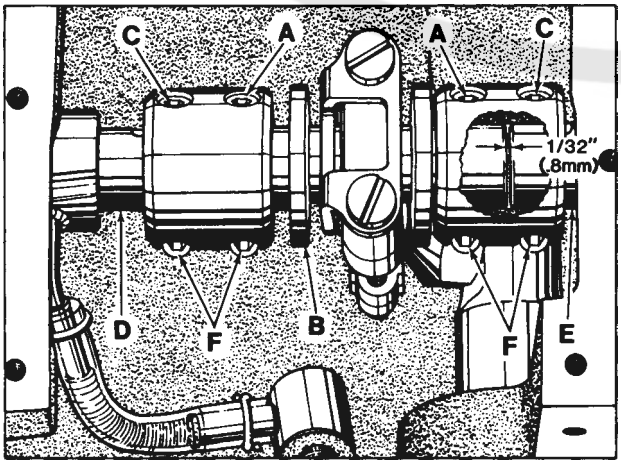



Fig 17

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).

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 .045 inch (1.14mm) clearance between the right side of its head and the bed .045" (1.14mm) 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.

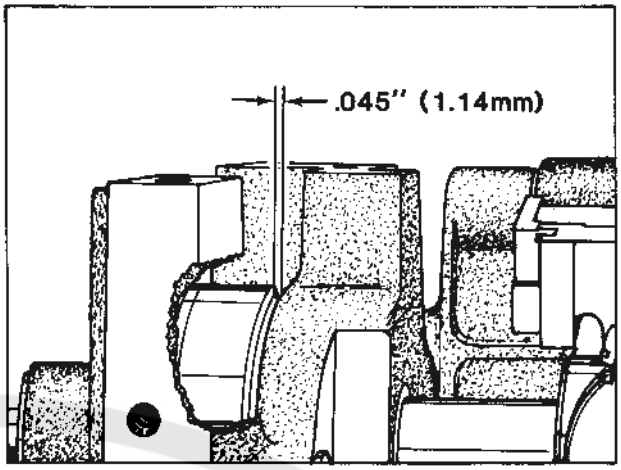



Fig 18

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.

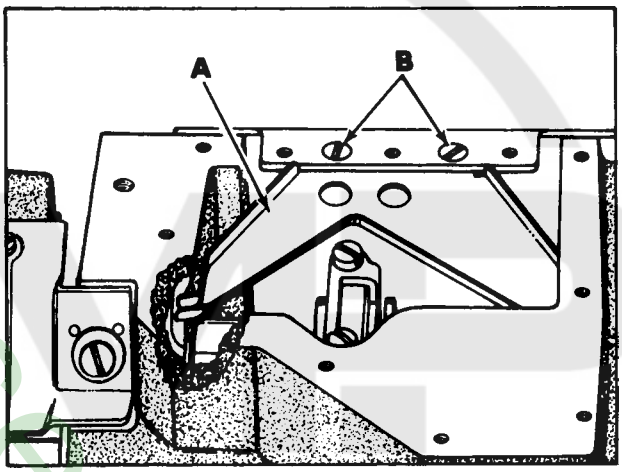



Fig 19

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, bearingcap (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

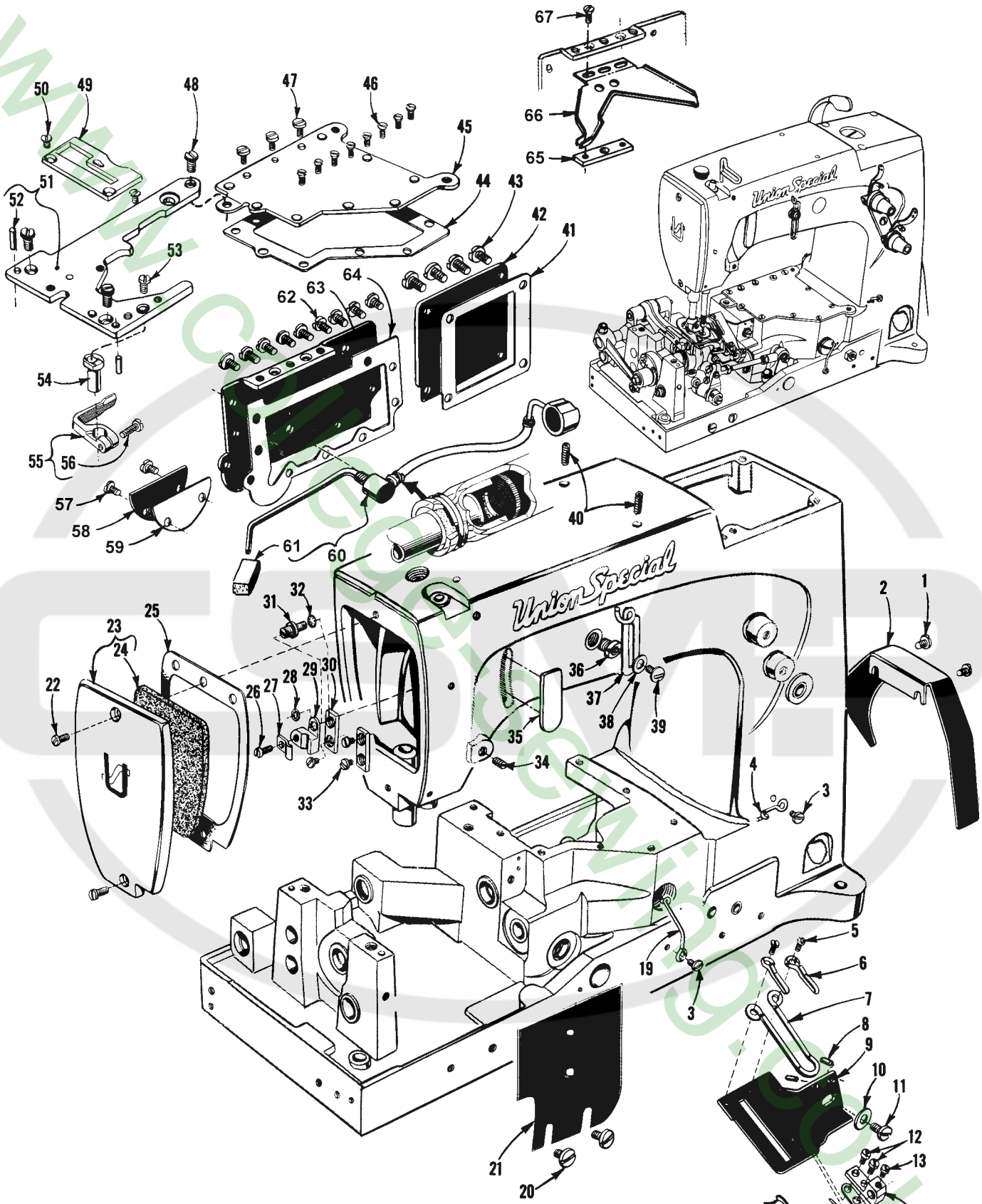
Where the construction permits, each part is stamped with its part number. On some of the smaller parts, and on those where construction does not permit, an identification letter is stamped in to distinguish the part from simil'ar ones.

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

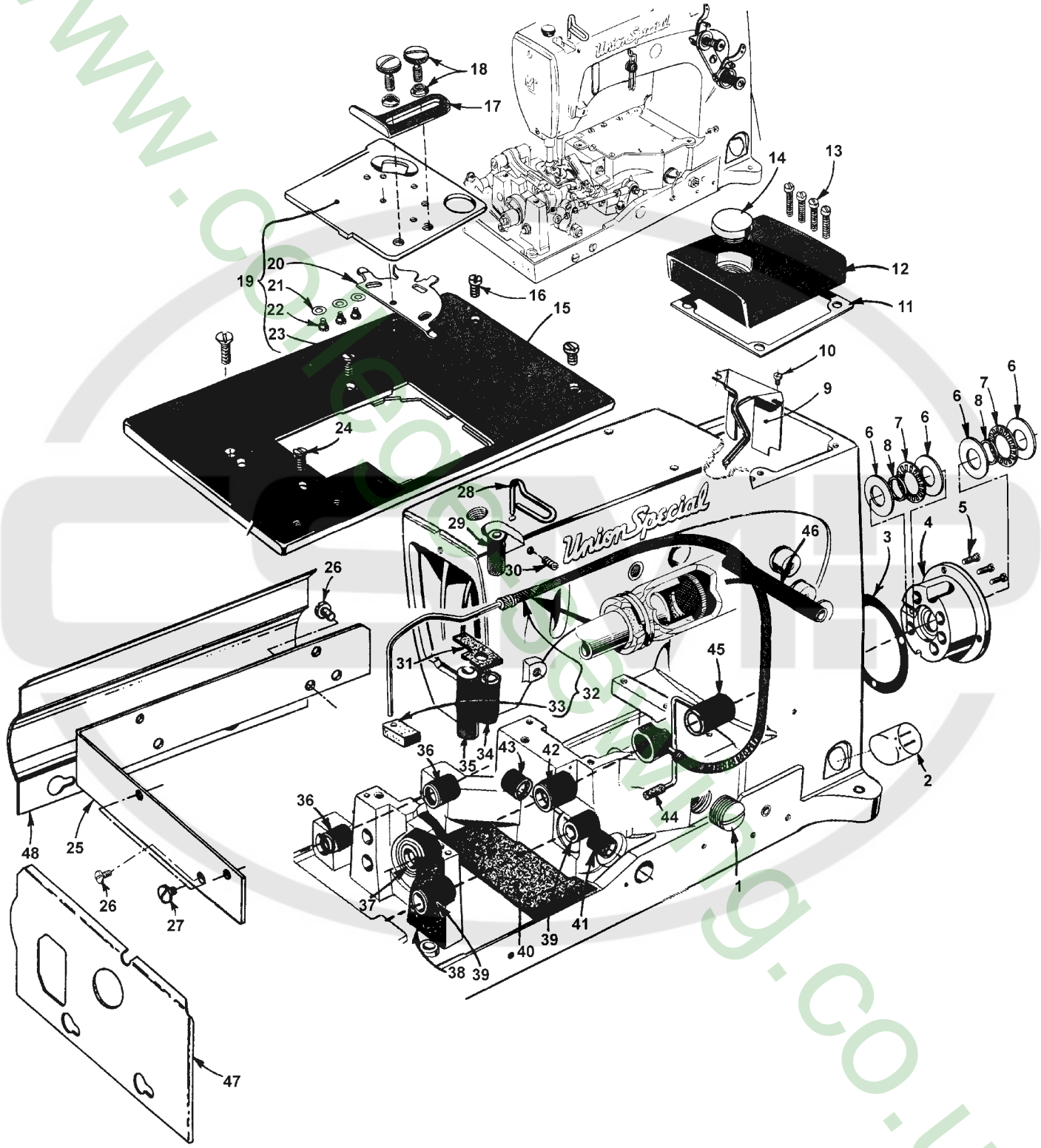
IMPORTANT! ON ALL ORDERS, PLEASE INCLUDE PART NAME AND STYLE OF MACHINE FOR WHICH PART IS ORDERED.

## USE GENUINE REPAIR PARTS

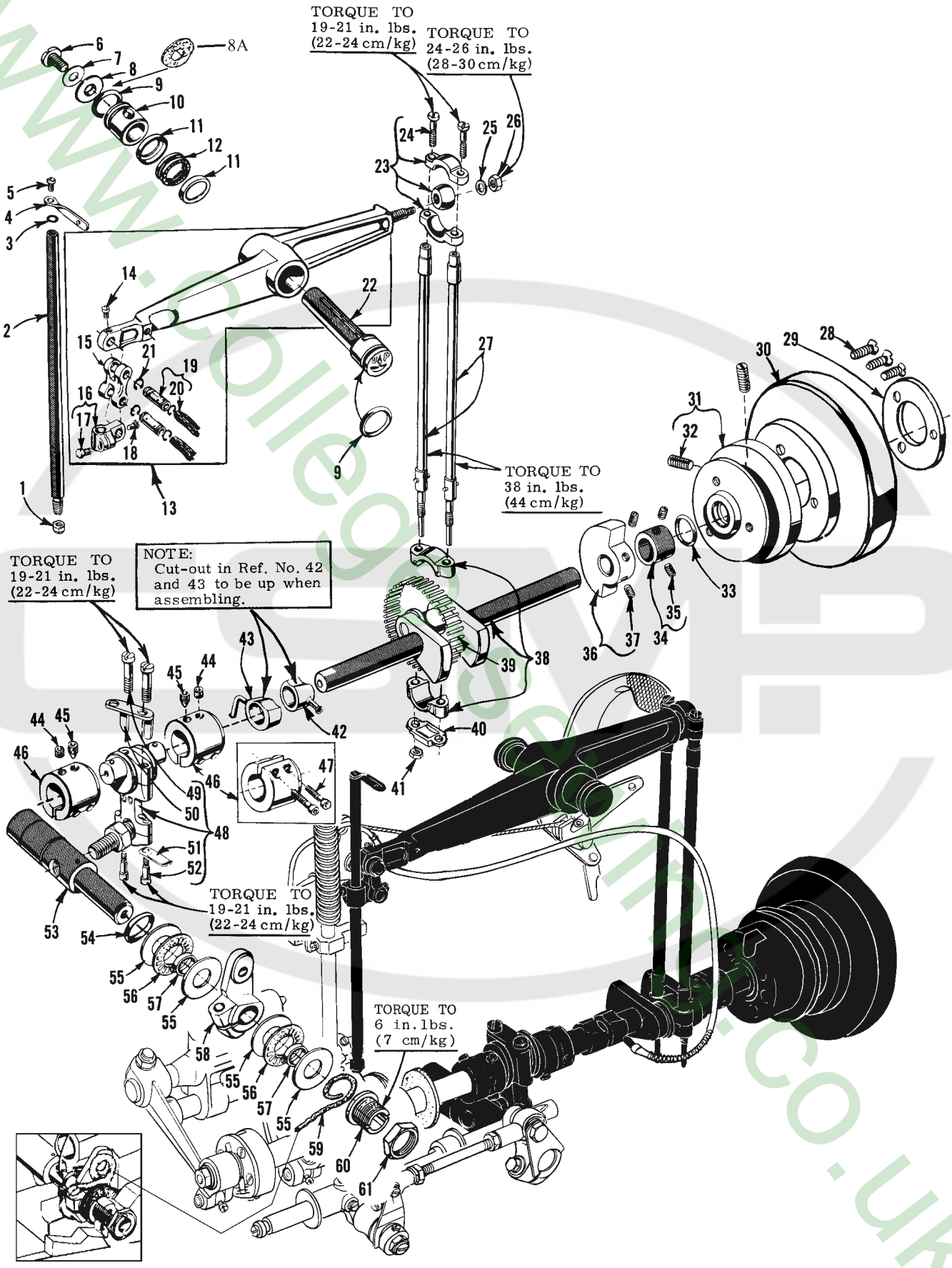
Success in the operation of these machines can be secured only with genuine UNION SPECIAL repair parts as furnished by the Union Special Corporation, its subsidiaries and authorized distributors. They are designed according to the most approved scientific principles, and are made with utmost precision.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



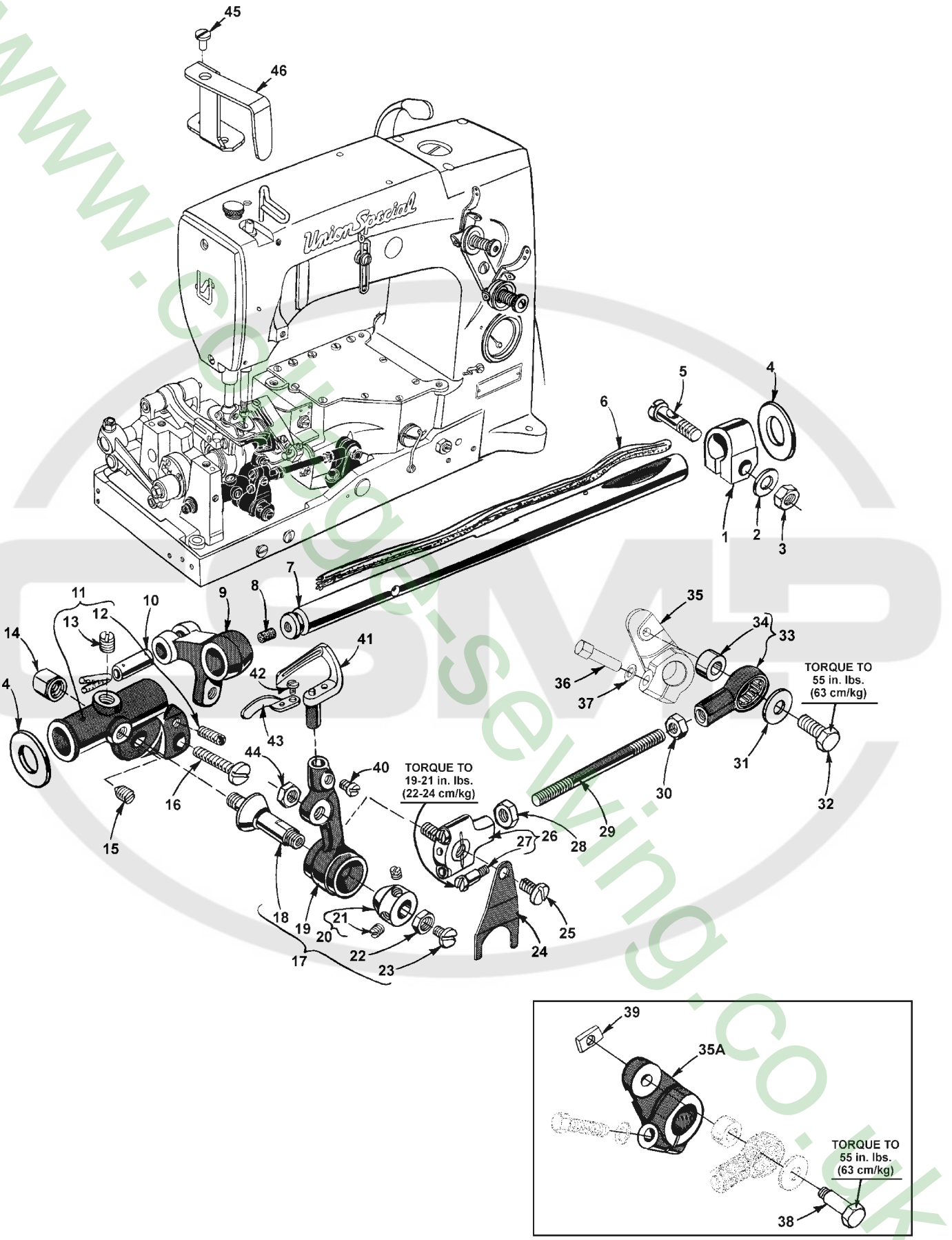
| Ref. No. | Part No. | Description | Amt. Req. |
|---|---|---|---|
| 1. | 22829 | Screw | 2 |
| 2. | 21375CE | Guard, belt | 1 |
| 3. | 98A | Screw | 2 |
| 4. | 52A | Eyelet, frame looper thread | 1 |
| 5. | 22593 | Screw | 2 |
| 6. | 51158D | Eyelet, take-up | 2 |
| 7. | 51104F | Wire, cast-off | 1 |
| 8. | 50-216BLK | Pin, dowel | 2 |
| 9. | 51157H | Support, cast-off wire | 1 |
| 10. | 21657E | Washer | 1 |
| 11. | 22528 | Screw | 1 |
| 12. | J87J | Screw | 2 |
| 13. | 77 | Screw | 1 |
| 14. | 51204C | Support, auxiliary cast-off | 1 |
| 15. | 51104H | Cast-off, auxiliary | 1 |
| 16. | 51204A | Support, cast-off wire | 1 |
| 17. | 22798A | Screw | 1 |
| 18. | 51204 | Wire, cast-off | 1 |
| 19. | 52958B | Eyelet, frame looper thread | 1 |
| 20. | 25S | Screw | 2 |
| 21. | 51482A | Guard | 1 |
| 22. | 22569C | Screw | 2 |
| 23. | 56382 | Cover, head | 1 |
| 24. | 56382A | Felt | 1 |
| 25. | 56382AT | Gasket | 1 |
| 26. | 22585 | Screw | 1 |
| 27. | 56393D | Clamp, head oil tube | 1 |
| 28. | 7947 | Nut | 1 |
| 29. | 56393C | Block, head oil tube mounying | 1 |
| 30. | 35731A | Plate, presser bar connection guide | 2 |
| 31. | 51294R | Screw | 1 |
| 32. | 660-342 | Lockwasher | 1 |
| 33. | 22513 | Screw | 3 |
| 34. | 95 | Screw, plug | 1 |
| 35. | 660-694 | Gasket, needle lever eyelet | 1 |
| 36. | 22889A | Screw, adapter | 1 |
| 37. | 539 | Eyelet, frame needle thread | 1 |
| 38. | 20 | Washer | 1 |
| 39. | 22848 | Screw | 1 |
| 40. | 22894E | Screw, needle lever thrust collar and stud | 2 |
| 41. | 56382AX | Gasket | 1 |
| 42. | 56382D | Cover, lower crank chamber | 1 |
| 43. | 22548 | Screw | 4 |
| 44. | 56382AW | Gasket | 1 |
| 45. | 56382G | Cover, top oil reservoir | 1 |
| 46. | 22524 | Screw | 8 |
| 47. | 22585A | Screw | 3 |
| 48. | 22839 | Screw, throat plate support | 3 |
| 49. | C51124D | Throat Plate, for style 56100MB | 1 |
| 50. | 87 | Screw | 2 |
| 51. | 56180B | Support, throat plate | 1 |
| 52. | 51280J | Pin, dowel | 2 |
| 53. | 22570A | Screw, for styles 56100PB, TB | 1 |
| 54. | 56168 | Holder, needle guard, for styles 56100PB, TB | 1 |
| 55. | 51125E | Guard, needle, for styles 56100PB, TB | 1 |
| 56. | 22782A | Screw, for styles 56100PB, TB | 1 |
| 57. | 22570A | Screw | 2 |
| 58. | 56382J | Cover, looper drive shaft | 1 |
| 59. | 56382AV | Gasket | 1 |
| 60. | 59493A | Pump Assembly, oil, base | 1 |
| 61. | 666-214 | Felt | 1 |
| 62. | 22848 | Screw | 9 |
| 63. | 56382AA | Cover, back, oil reservoir | 1 |
| 64. | 56382AU | Gasket | 1 |
| 65. | 56382Y | Block, clamping | 1 |
| 66. | 56382AB | Plate, oil drip | 1 |
| 67. | 22524 | Screw | 2 |



| 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. | 56382B | Cover, upper crank chamber | 1 |
| 13. | 22541C | Screw | 4 |
| 14. | 660-1002 | Plug, oil filter | 2 |
| 15. | GA56301 | Cloth Plate | 1 |
| 16. | 22839C | Screw | 2 |
| 17. | 24X | Guide, edge, for styles 56100MB, PB | 1 |
| 18. | 25 | Screw, for 24X | 2 |
| 19. | 56381-219 | Cover, cloth plate, for style 56100MB | 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. | 666-259 | Felt | 1 |
| 39. | 50-895BLK | Bushing, looper rocker shaft | 2 |
| 40. | 56193A | Felt, machine base (front) | 1 |
| 41. | 52942W | Bushing, looper drive lever shaft (front) | 1 |
| 42. | 56190 | Bushing, mainshaft (intermediate) | 1 |
| 43. | 57842B | Bushing, looper drive lever shaft (rear) | 1 |
| 44. | 35897BV | Filter, oil intake | 1 |
| 45. | 56390G | Bushing, mainshaft (inner right) | 1 |
| 46. | 21657X | Bushing, tension release lever shaft | 1 |
| 47. | G51381BA | Oil Shield, left | 1 |
| 48. | G51381BD | Oil Shield, rear | 1 |
| - | 21227HR | Aligning Tool, for replacing 56344G bearing assembly (not shown) | 1 |

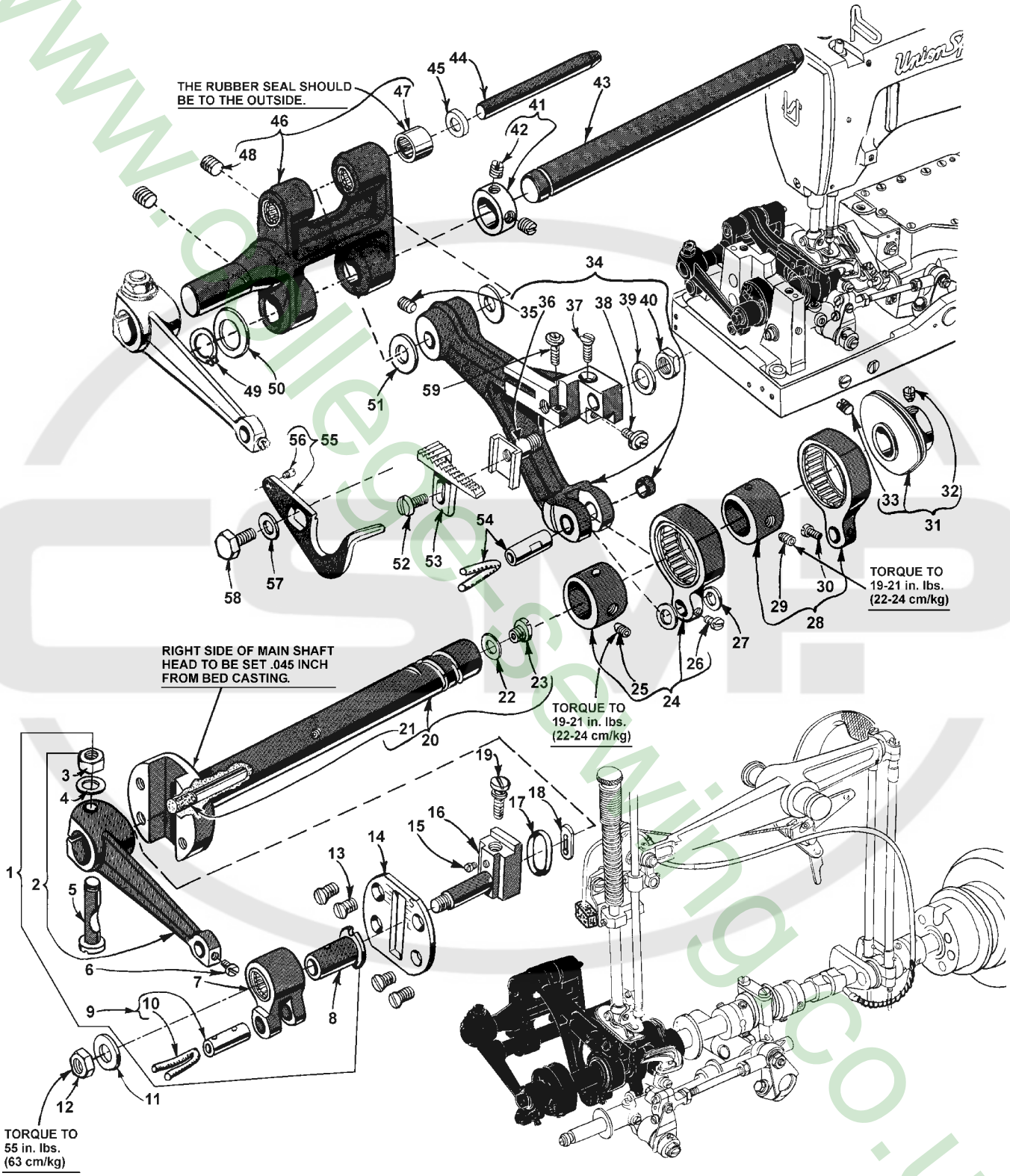


| Ref. No. | Part No. | Description | Amt. Req. |
|---|---|---|---|
| 1. | 56 | Nut | 1 |
| 2. | 51217C | Needle Bar | 1 |
| 3. | 27-435BLK | Washer, needle bar eyelet | 1 |
| 4. | 56358 | Eyelet, needle bar thread | 1 |
| 5. | 22768 | Screw | 1 |
| 6. | 22586R | Screw | 1 |
| 7. | 51250F | Gasket | 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. | 57821 | Handwheel | 1 |
| 31. | 56321R | Pulley | 1 |
| 32. | 22894AB | Screw | 2 |
| 33. | 660-202 | "O" Ring | 1 |
| 34. | 57847 | Collar, thrust | 1 |
| 35. | 95 | Screw | 2 |
| 36. | 51247 | Counterweight | 1 |
| 37. | 22894J | Screw | 2 |
| 38. | 29476LN | Crankshaft Sub-Assembly, for styles 56100MB, TB | 1 |
| - | 29476PB | Crankshaft Sub-Assembly, for style 56100PB | 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. 43 Page 19) | 1 |
| 43. | | Pump, oil, base (See Ref. No. 60 Page 17) | 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. | 56342E | Lever, looper drive, marked "D" | 1 |
| 59. | CL21 | Wick, oil | 1 |
| 60. | 52942AC | Screw, thrust synchronizing adjusting | 1 |
| 61. | 56342D | Nut | 1 |



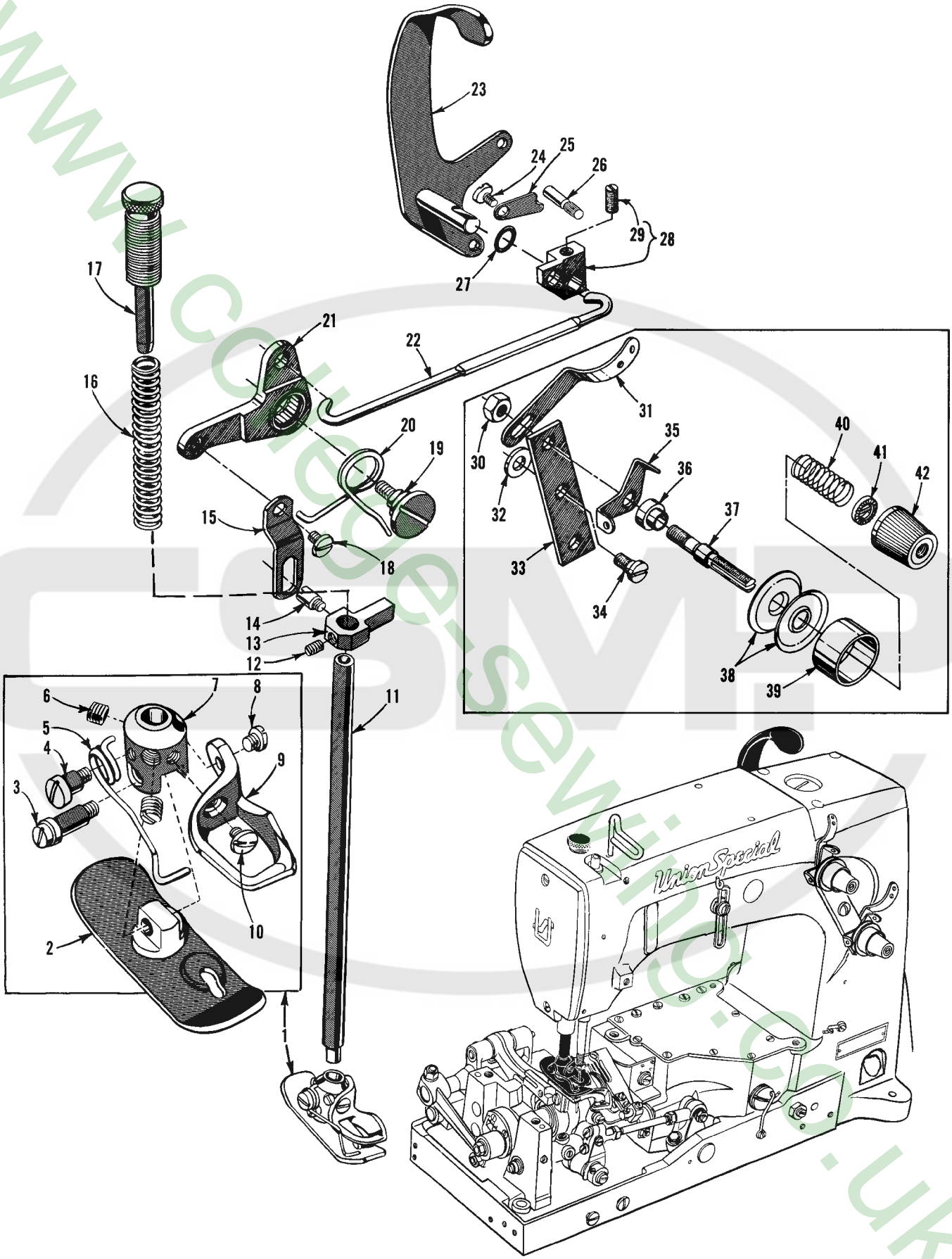
# LOOPER ROCKER AND CONNECTING ROD PARTS

| Ref. No. | Part No. | Description | Amt. Req. |
|---|---|---|---|
| 1. | 51244N | Collar, looper rocker shaft | 1 |
| 2. | 51216N | Washer | 1 |
| 3. | 18 | Nut | 1 |
| 4. | 51244L | Washer, thrust | 2 |
| 5. | 55244G | Stud | 1 |
| 6. | WO3 | Yarn | as required |
| 7. | 57744 | 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. | 18 | Nut, right hand thread | 1 |
| 31. | 20 | Washer | 1 |
| 32. | 627 | Screw, for styles 56100MB, TB | 1 |
| 33. | 29476LV | Bearing Assembly, looper connecting rod (right) | 1 |
| 34. | 56341F | Ferrule | 1 |
| 35. | 56342K | Lever, looper drive, for styles 56100MB, TB | 1 |
| 35A. | 56342F | Lever, looper drive, for styles 56100PB | 1 |
| 36. | 22882C | Screw | 1 |
| 37. | 51242M | Washer | 1 |
| 38. | 52942AE | Screw, for style 56100PB | 1 |
| 39. | 18B | Nut Plate, for style 56100PB | 1 |
| 40. | 73 | Screw, looper | 1 |
| 41. | 51108DA | Looper | 1 |
| 42. | 73A | Screw | 1 |
| 43. | 51110D | Guard, looper needle | 1 |
| 44. | 18 | Nut | 1 |
| 45. | 22585A | Screw | 1 |
| 46. | 33795D | Needle Bar Guard | 1 |



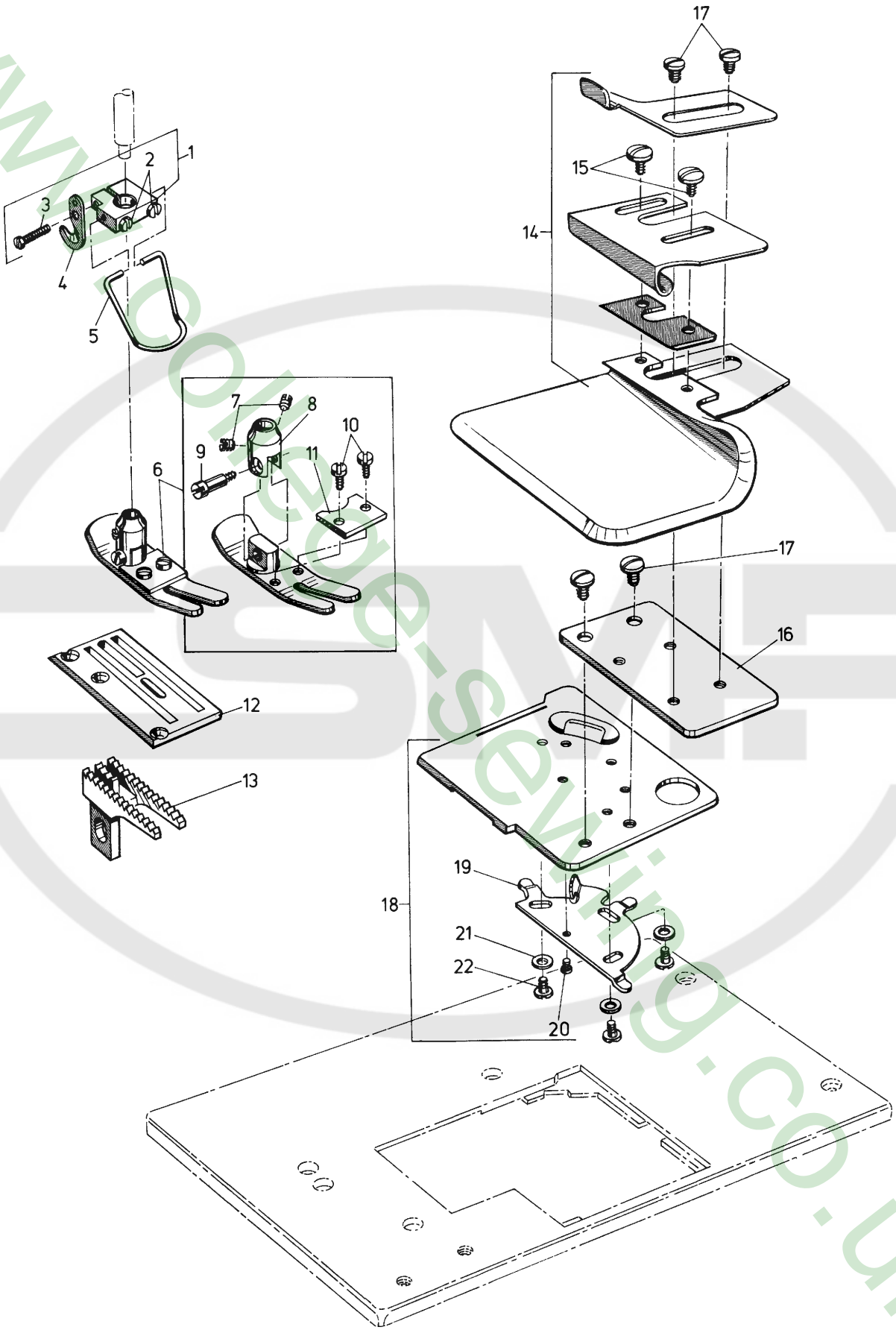
# MAINSHAFT AND FEED DRIVING PARTS

| 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. | WO3 | Yarn | 1 |
| 11. | 21657E | Washer | 1 |
| 12. | 269 | Nut, left thread | 1 |
| 13. | 22525A | Screw | 4 |
| 14. | 56322C | 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. | 56122B | Mainshaft | 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. | 56123 | Take-up, looper thread | 1 |
| 32. | 22764C | Screw, spot | 1 |
| 33. | 22580D | Screw, set | 1 |
| 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 |
| 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 | 1 |
| 46. | 56335G | Rocker, feed | 1 |
| 47. | 660-359 | 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, marked "RD", for style 56100MB | 1 |
| 54. | 51236A | Pin, link | 1 |
| 55. | 56125 | Guard, rear, needle, for style 56100MB | 1 |
| 56. | 22801 | Screw | 1 |
| 57. | 61434G | Washer | 1 |
| 58. | 18-715 | Screw | 1 |
| 59. | 22834A | Screw | 1 |

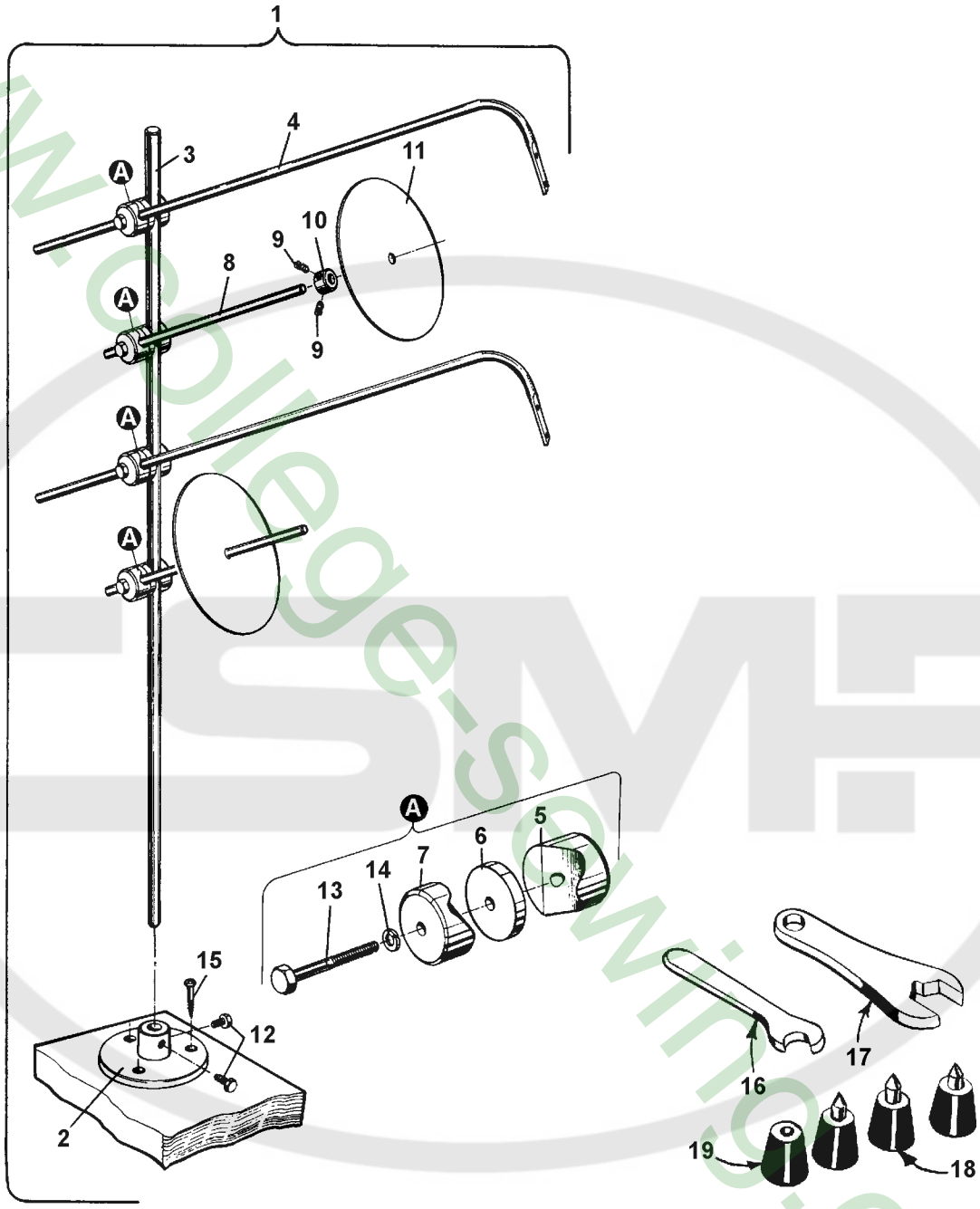


# PRESSER FOOT, LIFTER LEVER AND THREAD TENSION PARTS

| Ref. No. | Part No. | Description | Amt. Req. |
|---|---|---|---|
| 1. | 43120 | Presser Foot, for style 56100MB | 1 |
| 2. | 43130 | Bottom, presser foot | 1 |
| 3. | 22897 | Screw | 1 |
| 4. | 57WD | Screw | 1 |
| 5. | 15480C | Spring | 1 |
| 6. | 88 | Screw | 2 |
| 7. | 43130A | Shank | 1 |
| 8. | 22561 | Screw | 1 |
| 9. | 43130B | Guard, finger | 1 |
| 10. | 187A | Screw | 1 |
| 11. | 51257K | Bar, presser | 1 |
| 12. | 22596F | Screw | 1 |
| 13. | 51257M | Connection and Guide, presser bar | 1 |
| 14. | 402 | Screw | 1 |
| 15. | 56383A | Link, lifter lever | 1 |
| 16. | 53787 | Spring, presser | 1 |
| 17. | 56356 | Regulator, presser spring | 1 |
| 18. | 22758C | Screw | 1 |
| 19. | 22557G | Screw | 1 |
| 20. | 56383D | Spring | 1 |
| 21. | 56383AA | Bell Crank, presser foot lifter lever | 1 |
| 22. | 56383AB | Connecting Rod, presser foot lifter lever | 1 |
| 23. | 51183B | Lever, presser foot lifter | 1 |
| 24. | 22758C | Screw | 1 |
| 25. | 51183C | Latch, lever | 1 |
| 26. | 50-703BLK | Pin, stop | 1 |
| 27. | 660-207 | "O" Ring | 1 |
| 28. | 53783N | Lever, internal, presser foot lifter | 1 |
| 29. | 22537 | Screw | 1 |
| 30. | 43266 | Nut | 1 |
| 31. | 51491C | Guide, lead-in | 2 |
| 32. | 80557 | Washer, spacer | 1 |
| 33. | 52892 | Support, tension post | 1 |
| 34. | 22872 | Screw | 1 |
| 35. | 51192G | Eyelet, tension post | 2 |
| 36. | 51192B | Ferrule, tension post | 2 |
| 37. | 56392E | Post, tension | 2 |
| 38. | 109 | Disc, tension | 4 |
| 39. | 56392F | Shield, thread tension spring | 2 |
| 40. | 51292F14 | Spring, needle thread tension for styles 56100MB, PB | 1 |
| - | 51292F8 | Spring, needle thread tension for style 56100TB | 1 |
| - | 51292F2 | Spring, looper thread tension | 1 |
| 41. | 39592AK | Ferrule, tension spring | 2 |
| 42. | 39592Z | Nut, tension | 2 |

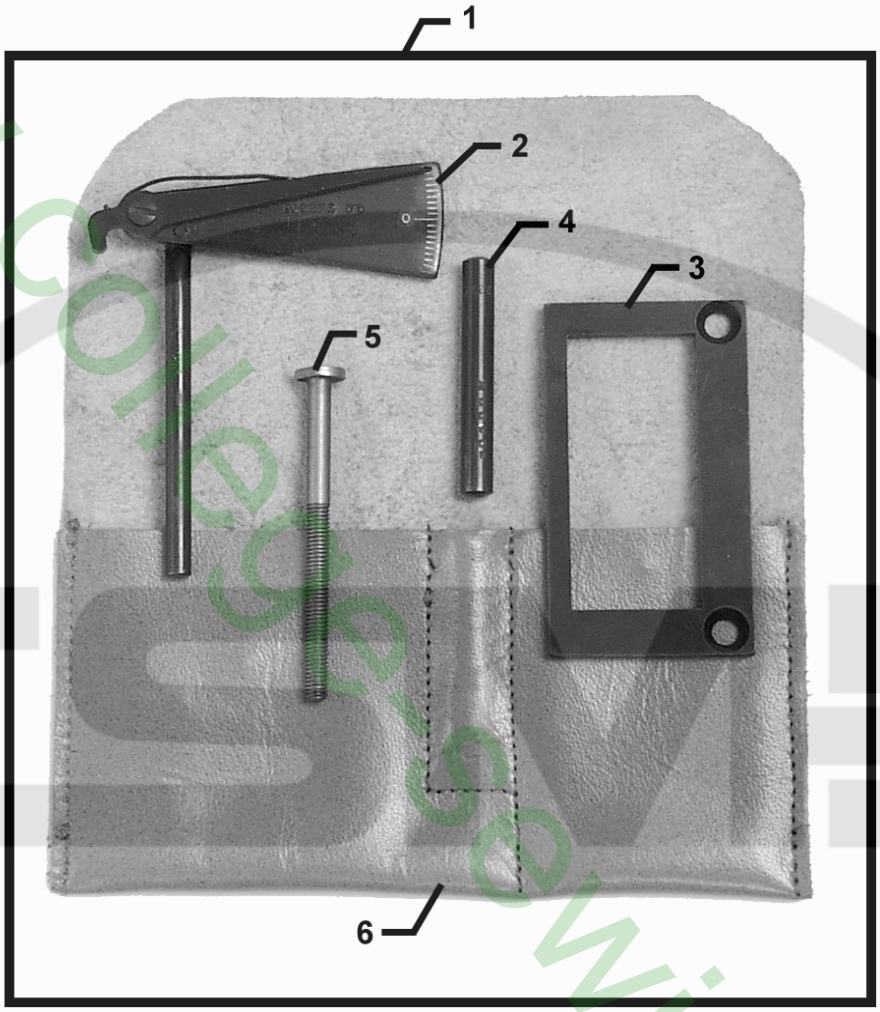


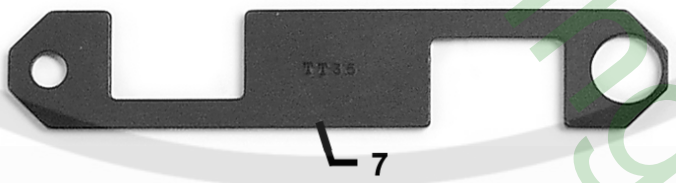
| Ref. No. | Part No. | Description | Amt. Req. |
|---|---|---|---|
| 1. | G52888B | Bracket, for Finger Protector | 1 |
| 2. | 77L | Screw | 2 |
| 3. | 22747A | Screw | 1 |
| 4. | 1741B | Chain Cutting Knife | 1 |
| 5. | 99682C | Finger Protector | 1 |
| 6. | 198X | Presser Foot | 1 |
| 7. | 88 | Screw | 2 |
| 8. | 65XD | Presser Foot Shank | 1 |
| 9. | 86X | Shoulder Screw | 1 |
| 10. | 25B | Screw | 2 |
| 11. | 199 | Needle Guard | 1 |
| 12. | 195X | Throat Plate, for style 56100TB | 1 |
| - | 6624L | Throat Plate, for style 56100PB | 1 |
| 13. | 6605L | Feed Dog | 1 |
| 14. | A9795 | Hemmer, for style 56100TB | 1 |
| 15. | 22711 | Screw, for style 56100TB | 2 |
| 16. | A9795A | Distance Plate, for Hemmer, for style 56100TB | 1 |
| 17. | 25C | Screw, for Hemmer and Distance Plate, for style 56100TB | 4 |
| 18. | 56381-212 | Cloth Plate Cover | 1 |
| 19. | 51281AC | Cloth Plate Cover Spring | 1 |
| 20. | 22760A | Screw | 1 |
| 21. | 35772H | Spring Washer | 3 |
| 22. | 22845B | Screw | 3 |

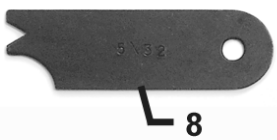


# THREAD STAND AND ACCESSORIES

| Ref. No. | Part No. | Description | Amt. Req. |
|---|---|---|---|
| 1. | 93065B2 | Thread Stand, (2 cones) | 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 |
| - | 660-457 | Cover, dust (not shown) | 1 |
| - | 28604R | Oil, 16 fl. oz. Spec. 175, (not shown) | 1 |



# 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 |

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

## NUMERICAL INDEX OF PARTS

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