

MANUAL NO.

IP9107-GR

First Edition

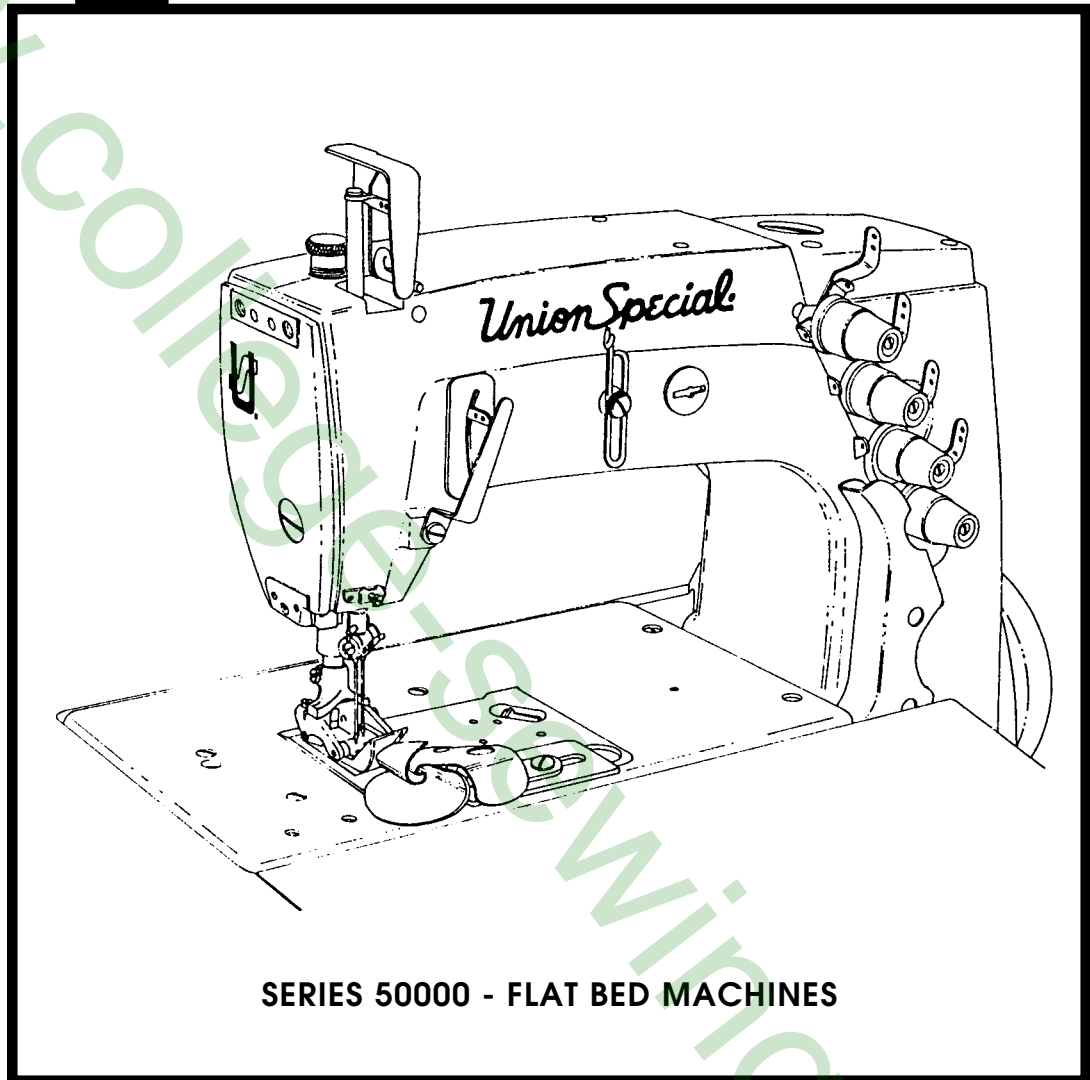
ADJUSTING INSTRUCTIONS AND ILLUSTRATED PARTS LIST

STYLES

56500R

56900P

56900R



SERIES 50000 - FLAT BED MACHINES



Finest Quality

Union Special
INDUSTRIAL SEWING EQUIPMENT



MANUAL NO. IP9107-GR ADJUSTING INSTRUCTIONS & ILLUSTRATED PARTS LIST
FOR 50000 SERIES MACHINES

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PREFACE

This technical manual has been prepared to guide you in the maintenance of your new Union Special machine. Careful attention to the instructions for operation and adjustment of these machines will enable you to maintain the superior performance and reliability designed and built into every Union Special machine.

The adjusting portion of this manual explains in detail the proper setting for each of the components related to forming the stitch and completing the functions of the machine. Illustrations are used to show the adjustments and reference numbers are used to point out specific items discussed.

Adjustments are presented in sequence so that a logical progression is accomplished. Some adjustments performed out of sequence may have an adverse effect on the function of other related parts.

NOTE: Instructions stating direction or location, such as right, left, front or rear of the machine are given relative to the operator's position at the machine unless otherwise noted. The handwheel rotates counterclockwise in operating direction; as viewed from the right end of the machine.

To simplify identification of repair parts, the mechanisms are illustrated by exploded views. A numerical index at the back of the manual will help you locate an item when only the part number is known.

Implementation of preventative maintenance procedures can bring about significant improvements in operator productivity by avoiding costly equipment breakdowns. Whenever it becomes necessary to make repairs or replace parts on your machine, be sure to insist on genuine UNION SPECIAL Repair Parts. These parts are designed specifically for your machine and manufactured with utmost precision to assure long lasting service.

This manual has been comprised on the basis of available information. Future changes and/or improvements may incorporate a slight modification of configuration in illustrations or part numbers.

SAFETY RULES

1. Before putting the machines described in this manual into service, carefully read the instructions. The starting of each machine is only permitted after taking notice of the instructions and by qualified operators.

IMPORTANT! Before putting the machine into service, also read the safety rules and instructions from the motor supplier.

2. Observe the national safety rules valid for your country.
3. The sewing machines described in this instruction manual are prohibited from being put into service until it has been ascertained that the sewing units which these sewing machines will be built into, have conformed with the EC Council Directives (89/392/EEC, Annex II B).

Each machine is only allowed to be used as foreseen. The foreseen use of the particular machine is described in paragraph "STYLES OF MACHINES" of this instruction manual. Another use, going beyond the description, is not as foreseen.

4. All safety devices must be in position when the machine is ready for work or in operation. Operation of the machine without the appertaining safety devices is prohibited.
5. Wear safety glasses.
6. In case of machine conversions and changes all valid safety rules must be considered. Conversions and changes are made at your own risk.
7. The warning hints in the instructions are marked with one of these two symbols:



8. When doing the following the machine has to be disconnected from the power supply by turning off the main switch or by pulling out the main plug:
 - 8.1 When threading needle(s), looper, spreader etc.
 - 8.2 When replacing any parts such as needle(s), presser foot, throat plate, looper, spreader, feed dog, needle guard, folder, fabric guide etc.
 - 8.3 When leaving the workplace and when the workplace is unattended.
 - 8.4 When doing maintenance work.
 - 8.5 When using clutch motors without actuation lock, wait until the motor is stopped totally.
9. Maintenance, repair and conversion work (see item 8) must be done only by trained technicians or special skilled personnel under consideration of the instructions.
10. Any work on the electrical equipment must be done by an electrician or under direction and supervision of special skilled personnel.
11. Work on parts and equipment under electrical power is not permitted. Permissible exceptions are described in the applicable sections of standard sheet DIN VDE 0105.
12. Before doing maintenance and repair work on the pneumatic equipment, the machine has to be disconnected from the compressed air supply. In case of existing residual air pressure, after disconnecting from compressed air supply (i.e. pneumatic equipment with air tank), the pressure has to be removed by bleeding.

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IDENTIFICATION OF MACHINES

Each UNION SPECIAL machine is identified by a Style number, which on these classes of machines, is stamped into the style plate affixed to the right front of the machine.

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

CLASS DESCRIPTION (56500)

Advanced high speed, high throw, flat bed machines. Two needles, independent row, two loopers, enclosed automatic lubricating system. Maximum recommended speed 6000 R.P.M. Maximum work space to right of needle bar 8 1/4 inches (209.6mm).

MACHINE STYLES

56500R Typical application - For attaching riser to dungarees, piecing sleeves on denim jackets and for attaching overall bibs made of medium heavy to heavy weight materials.

- Seam specification 401 LSc-2
- Type 147 GKS needle
- 16 and 18 gauge

CLASS DESCRIPTION (56900)

Advanced high speed, high throw, flat bed machines. Three needles, independent row, left needle in front, three loopers, enclosed automatic lubricating system. Maximum recommended speed 6000 R.P.M. Maximum work space to right of needle bar 8 1/4 inches (209.6nun).

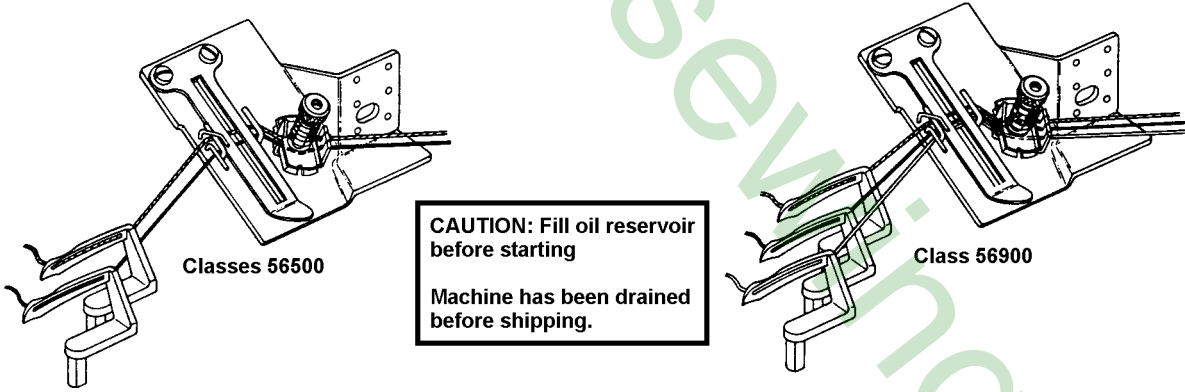
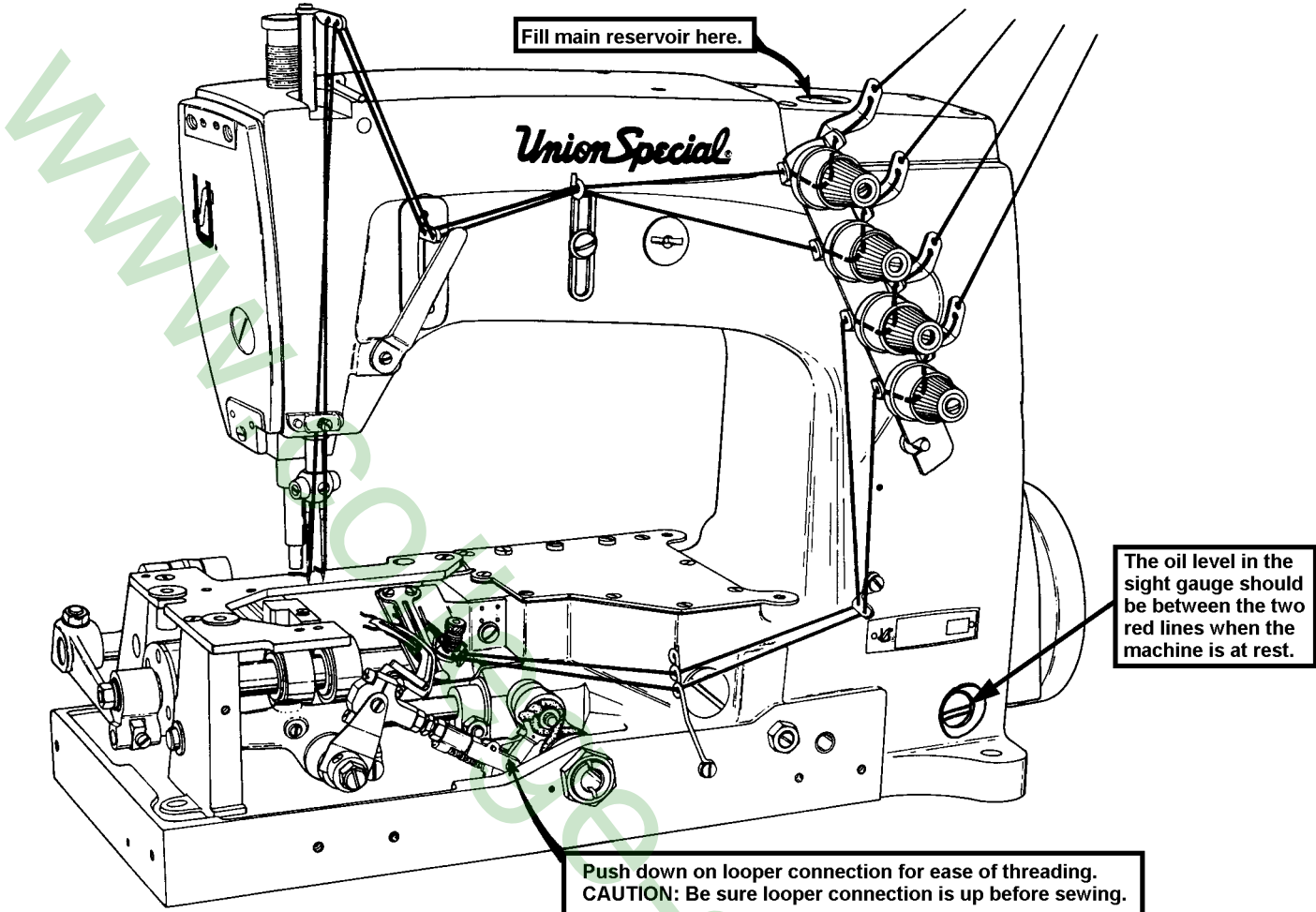
MACHINE STYLES

56900P Typical application - For attaching risers to the back of jeans made with medium heavy to heavy weight materials.

- Seam specification 401 LSc-3
- Type 147 GKS needle
- 8 and 9 gauge

56900R Typical application - For seat seams, outseam or inseam on jeans made from heavy weight denim.

- Seam specification 401 LSc-3
- Type 147 GKS needle
- 8 and 9 gauge



THREADING AND OILING DIAGRAM

The oil has been drained from the machine before shipping and the reservoir must be filled before starting to operate. Maintain oil level in "OPERATE" zone; add oil when the needle on the gauge registers on the black line marked "LOW". The machine is automatically lubricated and no oiling other than keeping the main reservoir filled is necessary. Refer to instructions under "LUBRICATION" and "CHANGING LENGTH" for additional information.

Threading is illustrated above for all Styles.

LUBRICATION

Use a straight mineral oil with a Saybolt viscosity of 90 to 125 seconds at 100 degrees Fahrenheit. This is equivalent to Union Special Corporation Specification No. 175.

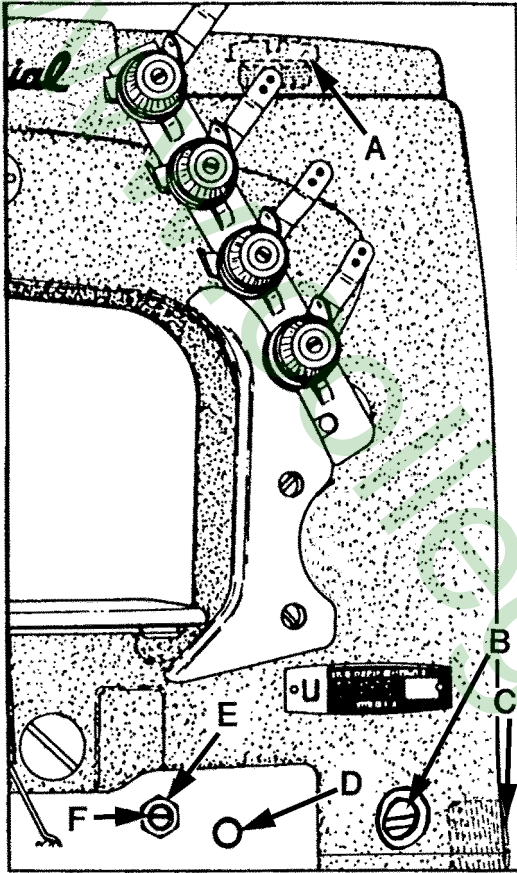


Fig. 2

The oil should be between the two red lines in sight gauge (B) when the machine is at rest.

1. If oil is required remove oil cap (A).
2. Fill between lines with Union Special Specification 175 oil (Union Special Part No. 28604R).



Caution: Do not exceed the upper red marker line. Excessive oil in machine will result in oil leakage and possible overheating.

3. To drain oil reservoir, remove plug screw (C), on lower right end of machine below the handwheel. Oil must be changed every 2000 operating hours to minimize wear.
4. 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.

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 packed and sold by UNION SPECIAL.

To have needle orders promptly and 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 as follows: "1000 needles, Type 147 GKS, Size 125/049".

NEEDLES (CONT.)

| Type No. | Description and Sizes |
|----------|---|
| 128 GAS | Round shank, round point, short, double groove, struck groove, ball eye, spotted, chromium plated - sizes 080/032, 090/036, 100/040, 110/044, 125/049, 140/054, 150/060, 170/067. |
| 128 GJS | Round shank, RG chain stitch point, short, double groove, struck groove, ball eye, spotted, conical blade feature, chromium plated - sizes 090/036, 100/040, 110/044, 125/049, 140/054. |
| 147 GKS | Round shank, round point, long, double groove, struck groove, oversize ball eye, spotted, short point, standard eye and grooves, chromium plated - sizes 090/036, 100/040, 110/044, 125/049, 140/054. |

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

ADJUSTING INSTRUCTIONS

NEEDLE BAR ALIGNMENT

Insert a new set of needles (type and size required). Turn handwheel to bring needle bar (A, Fig. 3) down to ensure that needles center in needle holes of throat plate as shown in Fig. 3. Adjustment can be made by loosening screw (B) slightly, allowing needle bar to be turned as required. Tighten clamp screw.

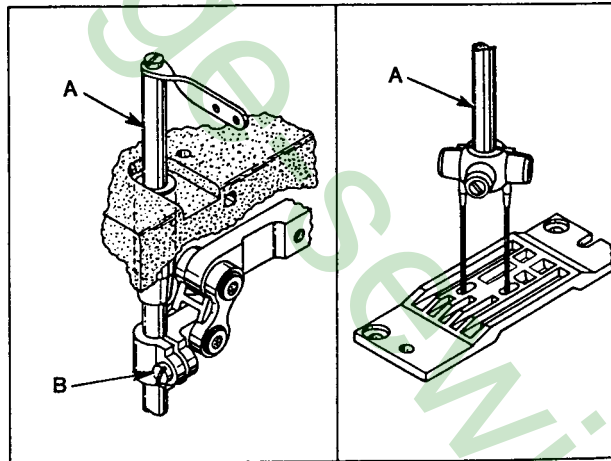


Fig. 3

SYNCHRONIZING LOOPER AND NEEDLE MOTIONS

Insert looper into the looper rocker, pushing it all the way down and tighten screw against flat on shank of looper. Turn handwheel in operating direction until the point of the looper (A, Fig. 4) moving to the left, is even with the left side of the right needle (B). Note the height of the eye of the needle with respect to the looper point (See Fig. 5). Turn the handwheel in the reverse direction until the point of looper, again moving to the left, is even with the left side of right needle (See Fig. 5). 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 (.127 mm) 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.

NOTE: The 1/64 inch (.4mm) dimension shown in Fig. 5 is for final setting of needle bar height.

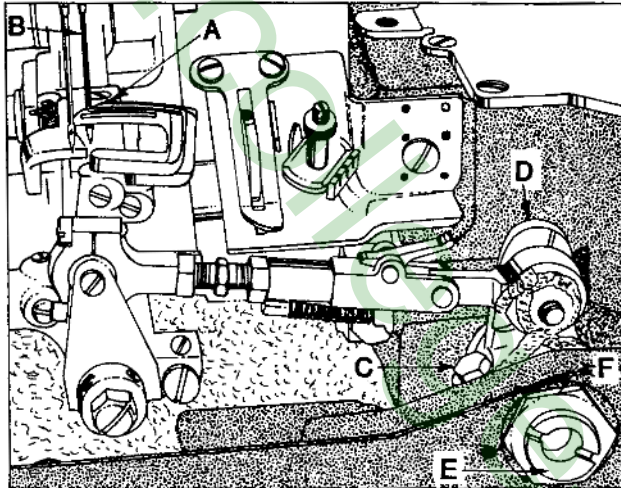


Fig. 4

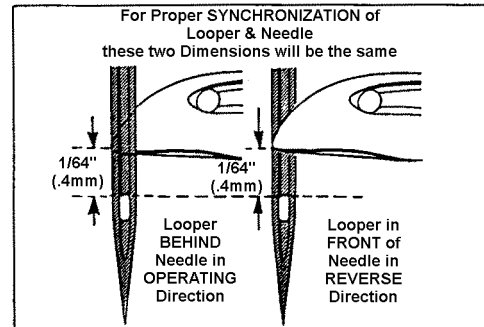


Fig. 5

Adjust the looper drive rocker lever shaft as-follows:

Loosen screw (C, Fig. 4) in looper drive lever (D). A rod of .146-40 thread or Union Special Screw No. 22870A 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. Loosen lock nut (F) and torque thrust adjusting screw (E) to 6 in. lbs. (7cm/kg); retighten lock nut (F) securely.

SYNCHRONIZING LOOPER AND NEEDLE MOTIONS (CONT.)

Turn handwheel in operating direction until looper is at the extreme right end of its travel. Check location of the center-line of right looper connecting rod bearing using gauge TT35. Place hole in gauge (B, Fig. 6) over threaded stud (A). The left end of gauge should locate against the RIGHT side of looper rocker cone (C). If adjustment is necessary, loosen clamp screw (D), reposition looper driver lever (E) as required and retighten screw (D). If a gauge is not available, the setting can be checked with a scale. "X" dimension is from centerline of stud (A) to centerline of cone (C) which should be $4 \frac{1}{16}$ inch (103.2mm).

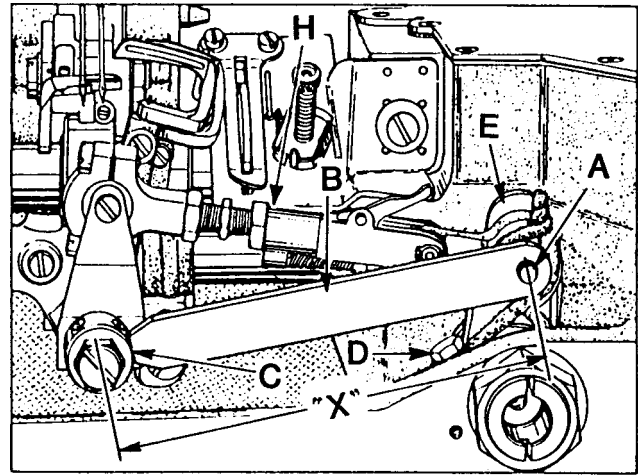


Fig. 6

CAUTION: After adjusting the looper gauge and looper avoid, there should be shake at both end points of the looper connecting rod while rotating handwheel a full 360° (H, Fig. 6). If bind occurs loosen nuts (D and E, Fig. 7) and reposition strap (H). Retighten nuts.

LOOPER SETTINGS

Insert a new needle, type and size as specified. Using the 1/8 inch (3.2mm) looper gauge, set the looper (A, Fig. 7) so the distance from the center of the needle (B) to the point of the looper is 1/8 inch (3.2mm), when the looper is at its farthest position to the right.

Looper gauge No. 21225-1/8 (C) can be used advantageously in making this adjustment. On two needle machines set the back looper to the right needle and on three needle machines set the middle looper to the middle needle, when setting the looper gauge. The chart on the following page indicates needle Type, looper gauge setting and looper gauge number. If adjustment is required, loosen nut (D) (it has a left hand thread) and nut (E) on connecting rod (F), turn the connecting rod forward or backward to obtain the 1/8 inch (3.2mm) dimension. Retighten both nuts, first nut (E), then nut (D). Make sure the left ball joint is in vertical position and does not bind after adjustment.

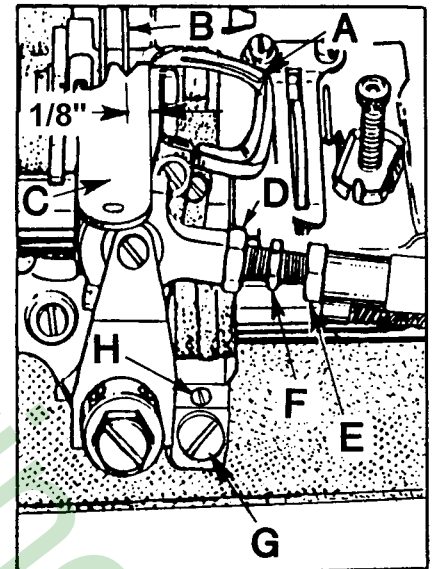


Fig. 7

LOOPER SETTINGS (CONT.)

| Machine Style | Needle Type | Looper Gauge Setting | Looper Gauge Number |
|---------------|-------------|----------------------|---------------------|
| 56500R | 147 GKS | 1/8 Inch (3.2mm) | 21225-1/8 |
| 56900P | 147 GKS | 1/8 Inch (3.2mm) | 21225-1/8 |
| 56900R | 147 GKS | 1/8 Inch (3.2mm) | 21225-1/8 |

The looper is set correctly if, as it moves to the left behind the needle, its point (A, Fig. 8) clears the rear of needle (B) by .002 inch (.051mm).

If adjustment is necessary, loosen lock screw (G, Fig. 7) and turn stop screw (H) as required. Turning stop screw clockwise sets the looper to the rear and turning it counterclockwise acts the reverse. Holding looper to the front while making this adjustment may prove helpful. Tighten lock screw when setting is obtained and recheck the adjustment.

Insert the other needles and loopers. Other than applying pressure on the looper at the front or back Fig. 8 of the blade, so as to get the proper in-line-of-feed setting, the same looper to needle relationship should exist without any further adjustment while clamping the looper in the looper rocker.

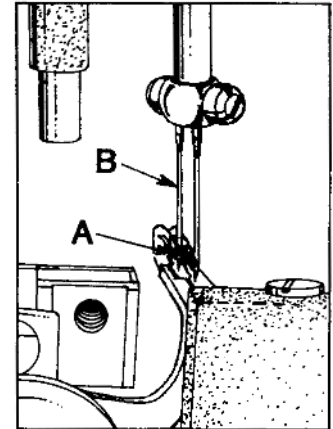


Fig. 8

NEEDLE BAR HEIGHT

The height of the needle is correct when the top of its eye is 1/64 to 1/32 inch (.4 - .8mm) below the underside of the looper, when the looper point flush with the left side of the needle as shown in Fig. 5. If adjustment is necessary, loosen screw (B, Fig. 3) and move needle bar (A) up or down as required and retighten screw. Care should be taken not to disturb alignment of needle bar when moving the needle bar either up or down. The descending needles must be deflected alike on the back of the loopers.

REAR NEEDLE GUARD

Rotate handwheel in operating direction to position looper point at the right hand side of needle. At this time the needle guard (C, Fig. 9) should be at its extreme end of forward travel. Set the guard front to back to just touch the needles, up to .002" (.05mm) deflection is permissible on one or two needles. Guard should be set as low as possible, yet have its vertical face approach approximately 3/64 +/- 1/64 inch (1.2mm +/- .4mm) above the needle point. To move needle guard forward or backward, loosen the screw (F), move needle guard as required, and retighten screw. To raise or lower needle guard, loosen screw (F), and turn screw (G) clockwise to lower needle guard or counterclockwise to raise it. Retighten screw (F) after guard is properly set.

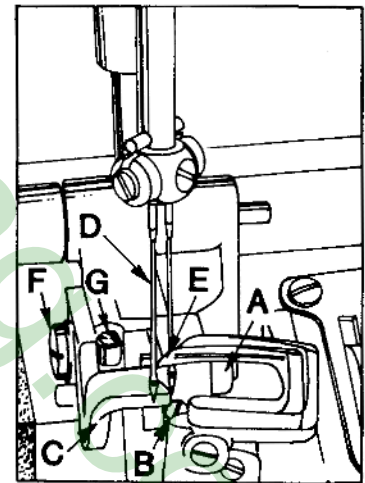


Fig. 9

REAR NEEDLE GUARD (CONT.)

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

FEED DOG SETTINGS

Feed dog (A, Fig. 10) 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 one full tooth + 1/32 inch, above throat plate and parallel to same. Loosen screw (D), which secures feed dog in position, and adjust screw (C) up or down to support feed dog. Retighten screw (D).

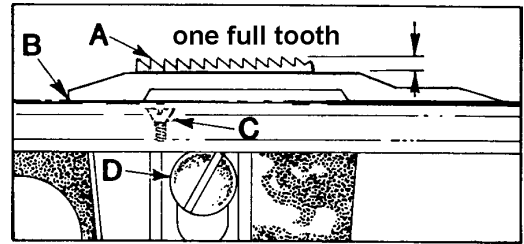


Fig. 10

Parallel adjustment can be made by loosening nut (A, Fig. 9) 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 screw (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 the feed dog can be accomplished by loosening nut (E, Fig. 11). Move feed rocker (B) as required and retighten nut.

CAUTION: Feed crank link sub-assembly (M, Fig. 11) **MUST** have shake with **NO** binds at a 360° rotation of the handwheel. Nut (F) should be torqued at 55 in. lbs. (63 cm/kg).

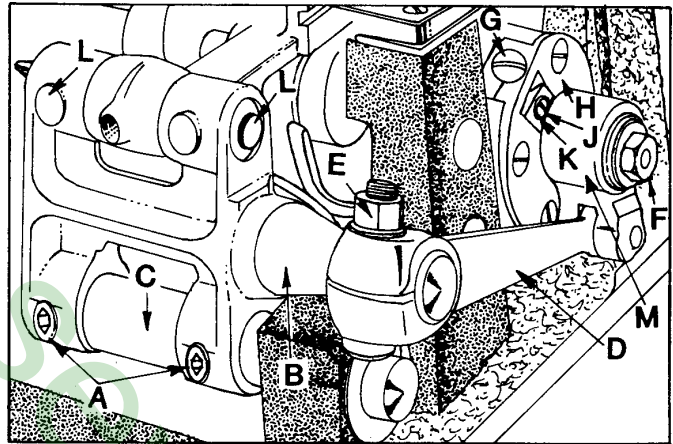


Fig 11

PRESSER BAR HEIGHT AND PRESSER FOOT

Height of presser bar (A, Fig. 13) is correct when presser foot can be removed by depressing foot lifter lever (B, Fig. 12). There should be approximately 1/32 inch (0.8mm) clearance between the lower surface of the presser bar connection and guide (B, Fig. 13) and the bottom surface of the casting head opening when foot lifter lever is released and the presser foot is lying flat on throat plate. Make sure feed dog is below throat plate surface.

PRESSER BAR HEIGHT (CONT.)

Adjustment can be made by turning handwheel to position needle bar at bottom of stroke. Loosen screw (C, Fig. 13) 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 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.

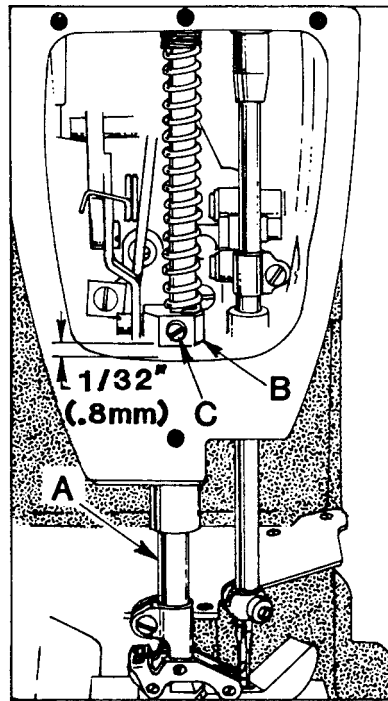


Fig. 13

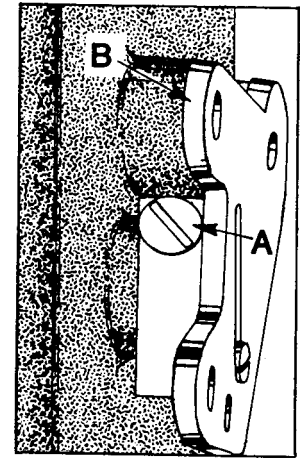


Fig. 12

NEEDLE THREAD TAKE-UP WIRE AND FRAME EYELET

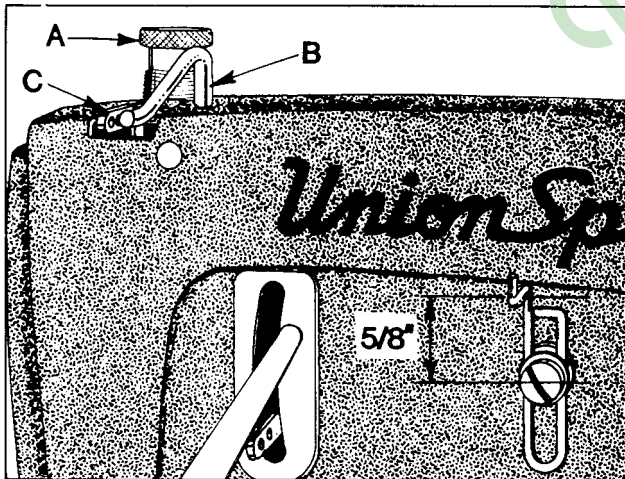


Fig. 14

Set needle thread take-up wire (B, Fig. 14), so that its upper surface is even with the top of the holes in needle bar thread eyelet (C) when needle bar has completed its downward stroke. Lower this setting for a smaller needle thread loop, or raise it for a larger loop. Set needle thread frame eyelet (D) so that the eyelet hole is 5/8 inch (15.9mm) above the attaching screw.

CHANGING STITCH LENGTH

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

CHANGING STITCH LENGTH (CONT.)

NOTE: Any change in stitch length will necessitate a corresponding change in the rear needle guard setting.

Needle bearings in the feed rocker at locations (L, Fig. 11) may require repacking after years of service. Bearings should be thoroughly cleaned and repacked with Union Special Corporation grease No. 28604P.

THREAD TENSIONS

The tension on the needle thread should be only sufficient to produce uniform stitches on the under surface of the fabric.

The looper thread tension is applied at the cast-off support tension disc assembly, and the adjusting nut should be set so that the tension on the looper thread is just sufficient to steady the thread.

THREAD TENSION RELEASE

The thread tension release is set correctly when it begins to function as the presser foot is raised to within 1/8 inch (3.2mm) of the end of its travel and is entirely released when the presser foot has reached its highest position.

If adjustment is required, loosen tension release lever screw (A, Fig.12), located at the back of machine and move tension disc separator as required. Retighten screw. After adjustment there should be no binding at any point.

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 noted. Special torque specifications for connecting rods, links, screws, etc., are shown on parts illustrations.

SPECIAL INSTRUCTIONS

NEEDLE LEVER

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

1. Install "O" rings (A, Fig. 15) 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 tightening 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 position, the proper amount of oil will be channeled to stud for lubricating needle lever (D).

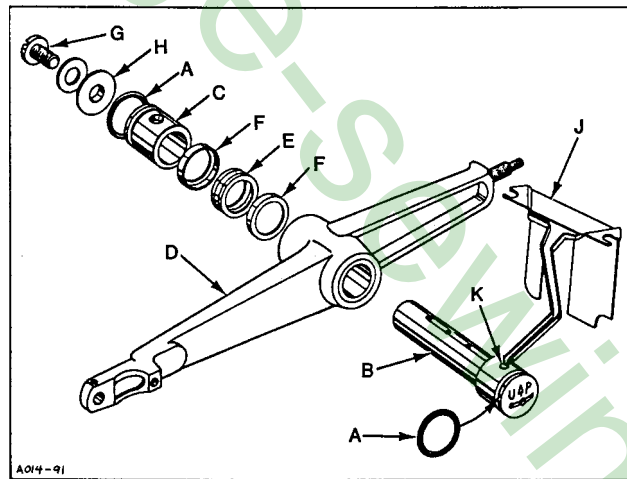


Fig. 15

ALIGNING MAINSHAFT TO CRANKSHAFT

As viewed looking down from rear of machine, spot screw (A, Fig. 16) 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 casting as shown (Fig. 17).

NOTE: Recheck to make sure that the take-up cam is centered in the cast-off plate without rubbing either side.

Looper drive crank (B, Fig. 16) must be positioned laterally so that strap (G, Fig. 16) is vertical and 1/32 inch clearance is maintained between end of crank and end of mainshaft (E) as shown. Once these settings are made, it is very important that the couplings are tightened in the following sequence for best performance.

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

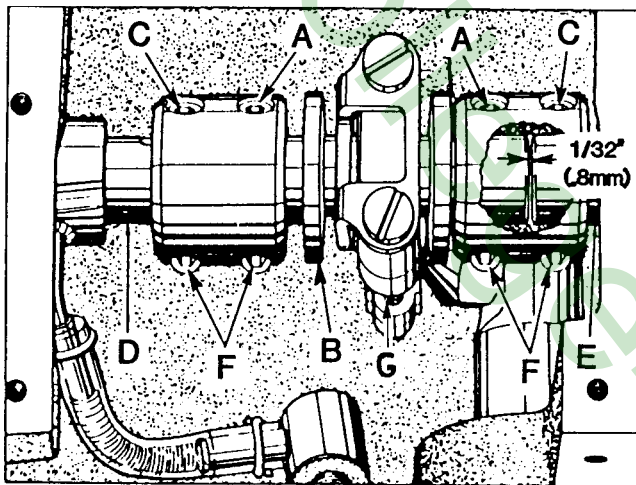


Fig. 16

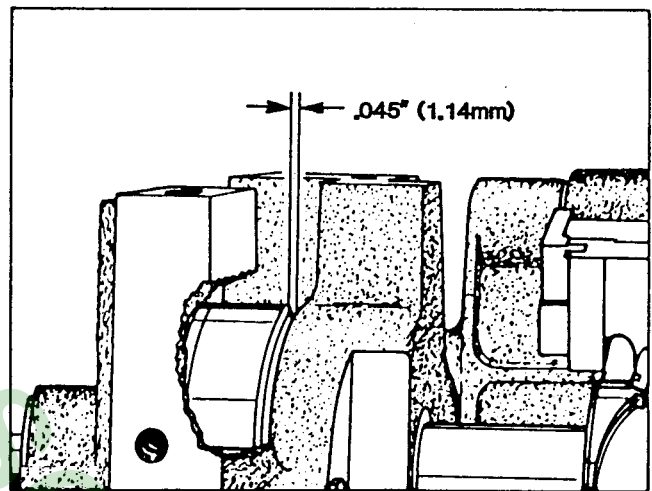


Fig. 17

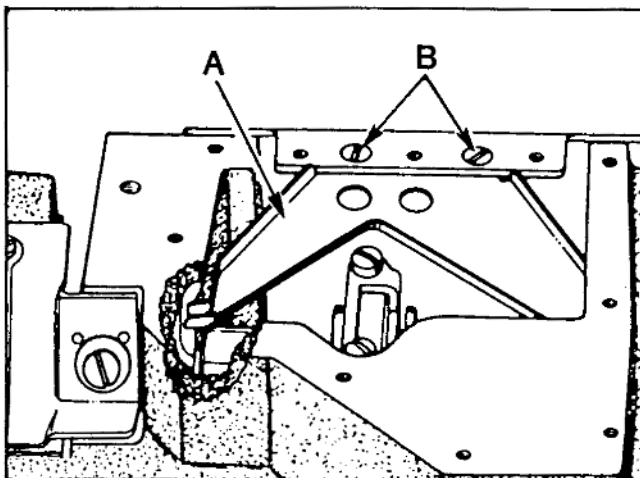


Fig. 18

The oil drip plate (A, Fig. 18) 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.

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 numbers 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:

| | | | |
|-----|---------|---|---|
| 9. | 29105AK | Looper Drive Lever Crank Assembly, for all Styles | 1 |
| 10. | 22559A | Bearing Cap Screw, lower | 2 |
| 11. | 56343E | Oil Splasher | 1 |
| 12. | 56343C | Ball Joint Guide Fork | 1 |
| 13. | 22587K | Bearing Cap Screw, upper | 1 |

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.

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 similar ones.

PLEASE NOTE: Part numbers represent the same part, regardless of which catalog they appear. On all orders, please include part name and style of machine for which part is ordered.

TERMS

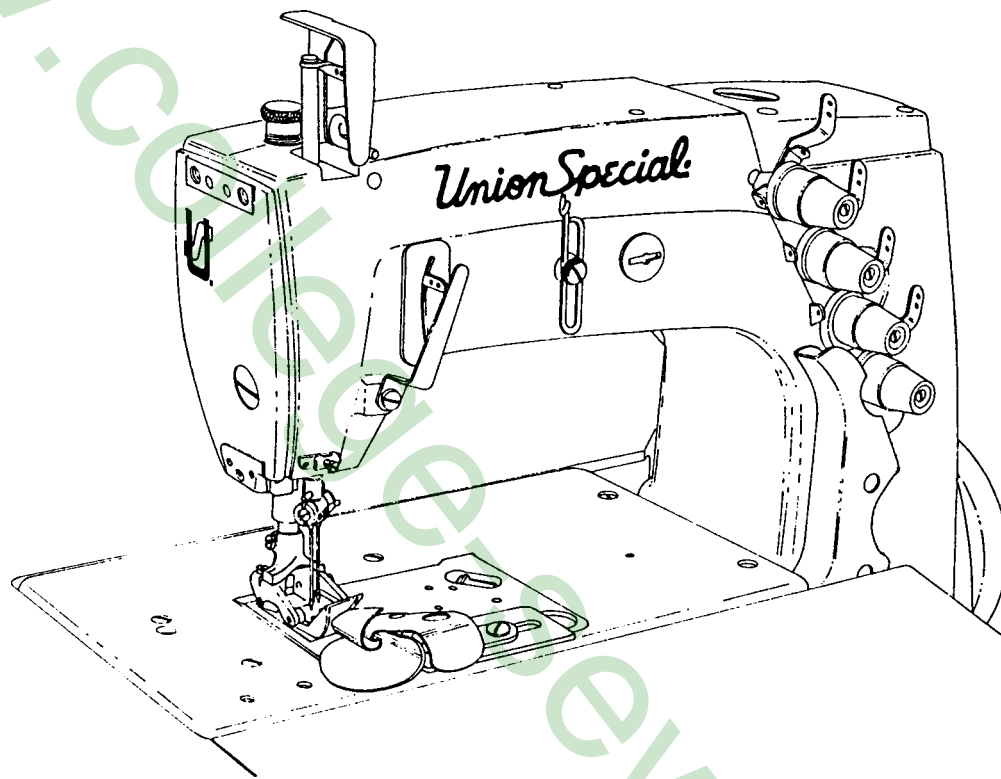
Prices are net cash and subject to change without notice. All shipments are forwarded f.o.b. shipping point. Parcel Post shipments are insured unless otherwise directed. A charge is made to cover postage and insurance.

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 is not sewing properly, see chart below for suggestions which may prove beneficial to you.

SKIPPED STITCHES

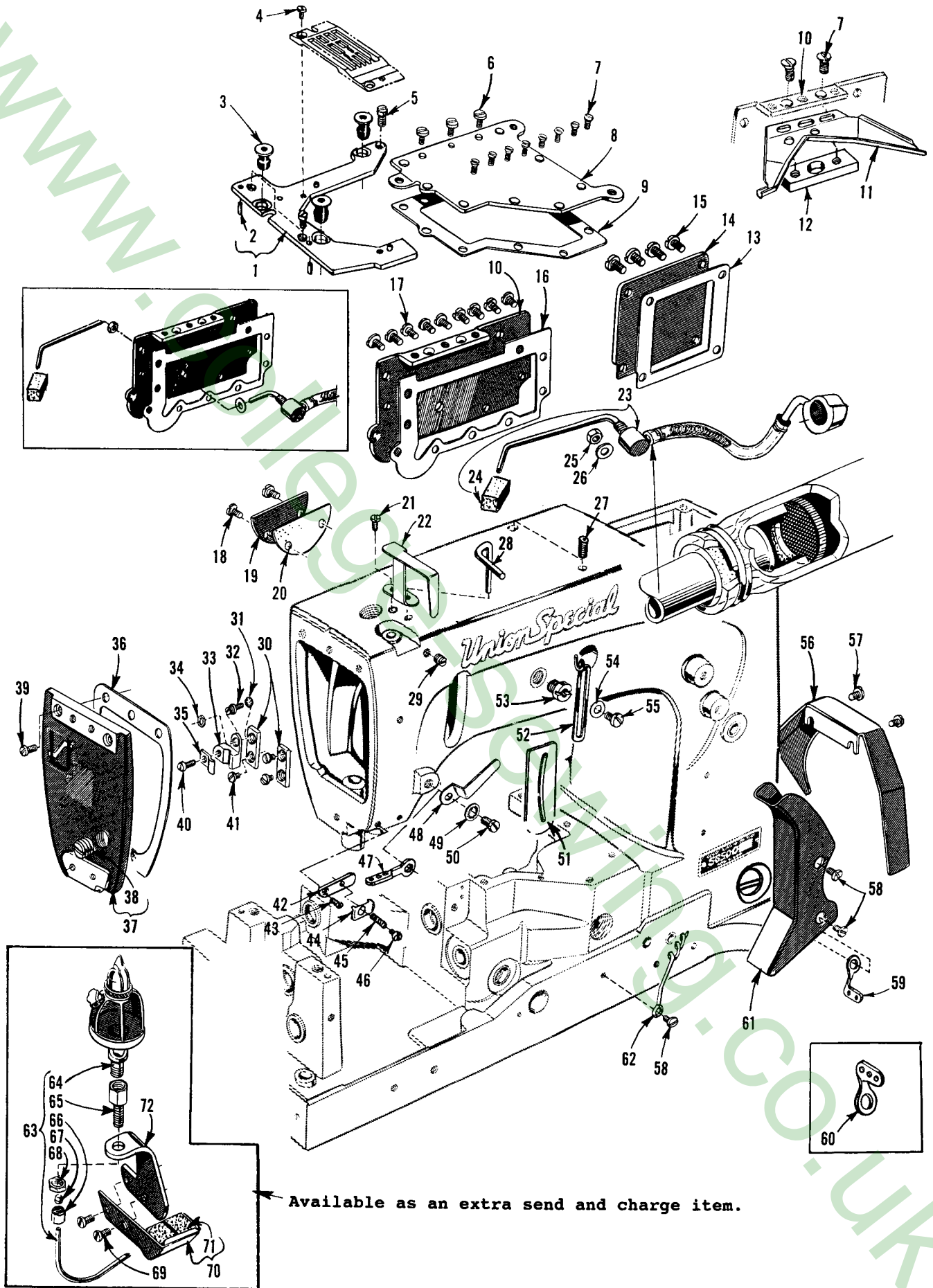
| Condition | Causes | Cures |
|---|---|---|
| Needle loop too small. | Take-up wire set too low. | Raise take-up wire slightly |
| | Needle thread stretched at bottom of stroke - loop not formed till stretched relieved. | Lower frame thread eyelet and/or reduced needle tension. |
| | Machine is not threaded properly. | See page 8 for threading diagram. |
| | Needle thread pinched by needle guard, collapsing needle loop. | Drop needle guard slightly. |
| | Thread twisting around needle. | Keep needle loop as small as possible and needle thread tension to a minimum. Use a left twist thread. |
| | Needle thread sticking in needle grooves due to heat. | Use oversize ball eye needle 147 GKS to reduce friction. |
| | Needle thread creased because thread is too big for needle eye. | Use larger needle or needle with oversized eye and grooves. |
| | Needle does not rise enough to form needle loop properly. | Reset looper gauge and needle height to specifications. |
| Looper misses needle loop as presser foot is coming on or coming off the seam. | Material is not held down in front or back of seam and is flagging. | Use tractor type presser foot if available or see if presser bar is sticking. |
| | Needle deflecting toward operator. | Use sharp point needle 128 GAS. |
| Needle loop formed properly but brushed out of the way by looper. | Needle bar set too high or too low. | Set needle bar to specifications. |
| Looper misses needle loop when operator is trying to match seams or ends of garments. | Needle deflecting toward operator who may be holding back on material while matching seams or ends of garments. | Do not hold back excessively on material. Properly adjust feed and maintain a uniform presser foot pressure so operator does not hold back. |
| Machine misses needle loop when stitch length is increased. | Needle deflecting toward the operator because the needle guard is set too far forward. | Move needle guard to the rear. |
| 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 needle glancing off when coming on a seam. | Use a sharp needle to stop needle from glancing off seam. Check needle for burr. |

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EXPLODED VIEWS
AND
DESCRIPTION OF PARTS

WWW



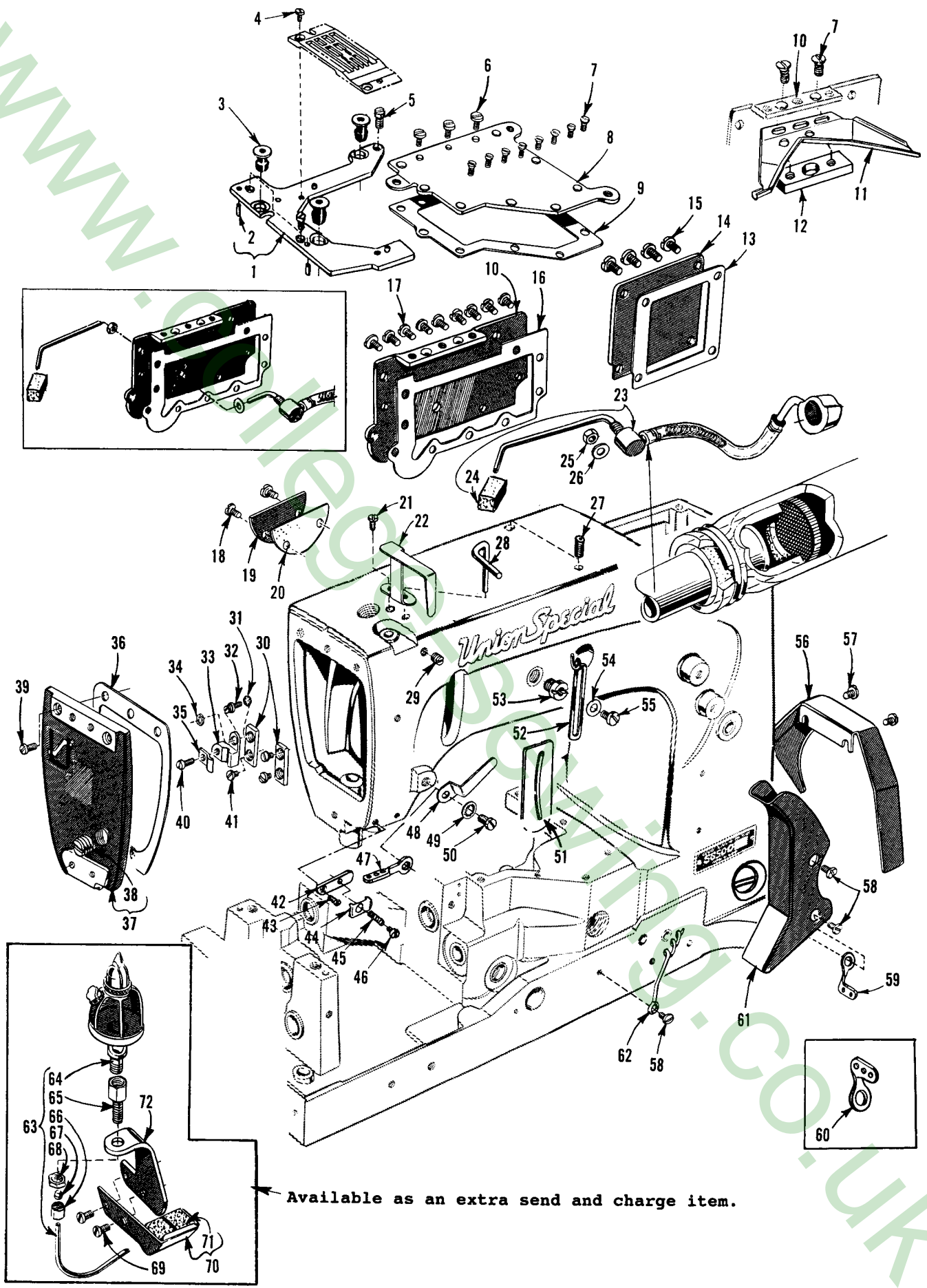
Available as an extra send and charge item.

MAIN FRAME, THROAT PLATE SUPPORT, MISC. COVERS & OILING PARTS

| Ref. No. | Part No. | Description | Amt. Req. |
|----------|----------|---|-----------|
| 1. | 56480 | Throat Plate Support | 1 |
| 2. | 51280J | Dowel Pin | 2 |
| 3. | 660-313 | Well Nut | 3 |
| 4. | 22570 | Screw, for throat plate | 2 |
| 5. | 22839 | Screw, for throat plate support | 3 |
| 6. | 22585A | Screw | 3 |
| 7. | 22524 | Screw, for ref. no. 8 and 12 | 10 |
| 8. | 56382AW | Oil Reservoir Cover, top | 1 |
| 9. | 56382H | Gasket | 1 |
| 10. | 56382AA | Oil Reservoir Cover, back | 1 |
| 11. | 56382AB | Oil Drip Plate | 1 |
| 12. | 56382Y | Oil Drip Plate Clamping Block | 1 |
| 13. | 56382AX | Gasket | 1 |
| 14. | 56382D | Crank Chamber Cover, lower | 1 |
| 15. | 22548 | Screw | 4 |
| 16. | 56382AU | Gasket | 1 |
| 17. | 22848 | Screw | 9 |
| 18. | 22829 | Screw | 2 |
| 19. | 56382J | Looper Drive Shaft Reservoir Cover | 1 |
| 20. | 56382AV | Gasket | 1 |
| 21. | 22585A | Screw, for needle bar | 1 |
| 22. | 33795 | Needle Bar Eyelet Guard | 1 |
| 23. | 59493A | Base Oil Pump Assembly | 1 |
| 24. | 666-214 | Intake Felt | 1 |
| 25. | 258A | Nut, for ref. no. 22 | 1 |
| 26. | 666-230 | Gasket, for ref. no. 22 | 1 |
| 27. | 22894E | Screw, for ref. no. 10, 42 on page 29 | 2 |
| 28. | 56470 | Needle Thread Take-up Wire | 1 |
| 29. | 95 | Plug Screw | 1 |
| 30. | 35731A | Presser Bar Connection Guide Plate | 2 |
| 31. | 660-342 | Lockwasher | 1 |
| 32. | 51294R | Screw, for ref. no. 29 | 1 |
| 33. | 56393C | Head Oil Tube Mounting Block | 1 |
| 34. | 7947 | Nut | 1 |
| 35. | 56393D | Head Oil Tube Clamp | 1 |
| 36. | 56382AT | Gasket, for head cover | 1 |
| 37. | 56382B | Head Cover, all Styles | 1 |
| 38. | 22733C | Plug Screw | 1 |
| 39. | 22569C | Screw, for head cover | 3 |
| 40. | 22585 | Screw, for head oil tube mounting bracket | 1 |
| 41. | 22513 | Screw, for ref. no. 30 | 3 |

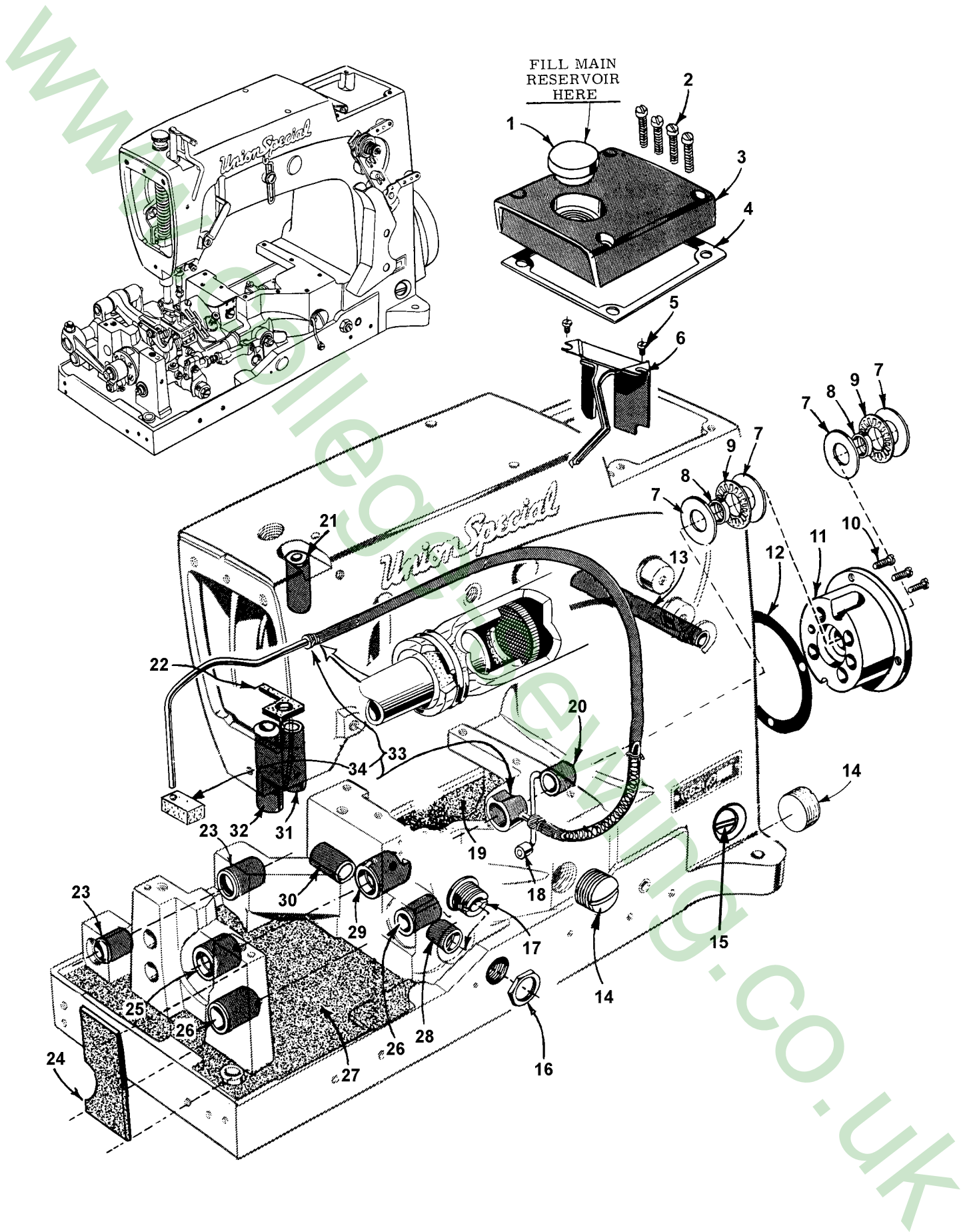
42. thru 72 See following page.

WWW



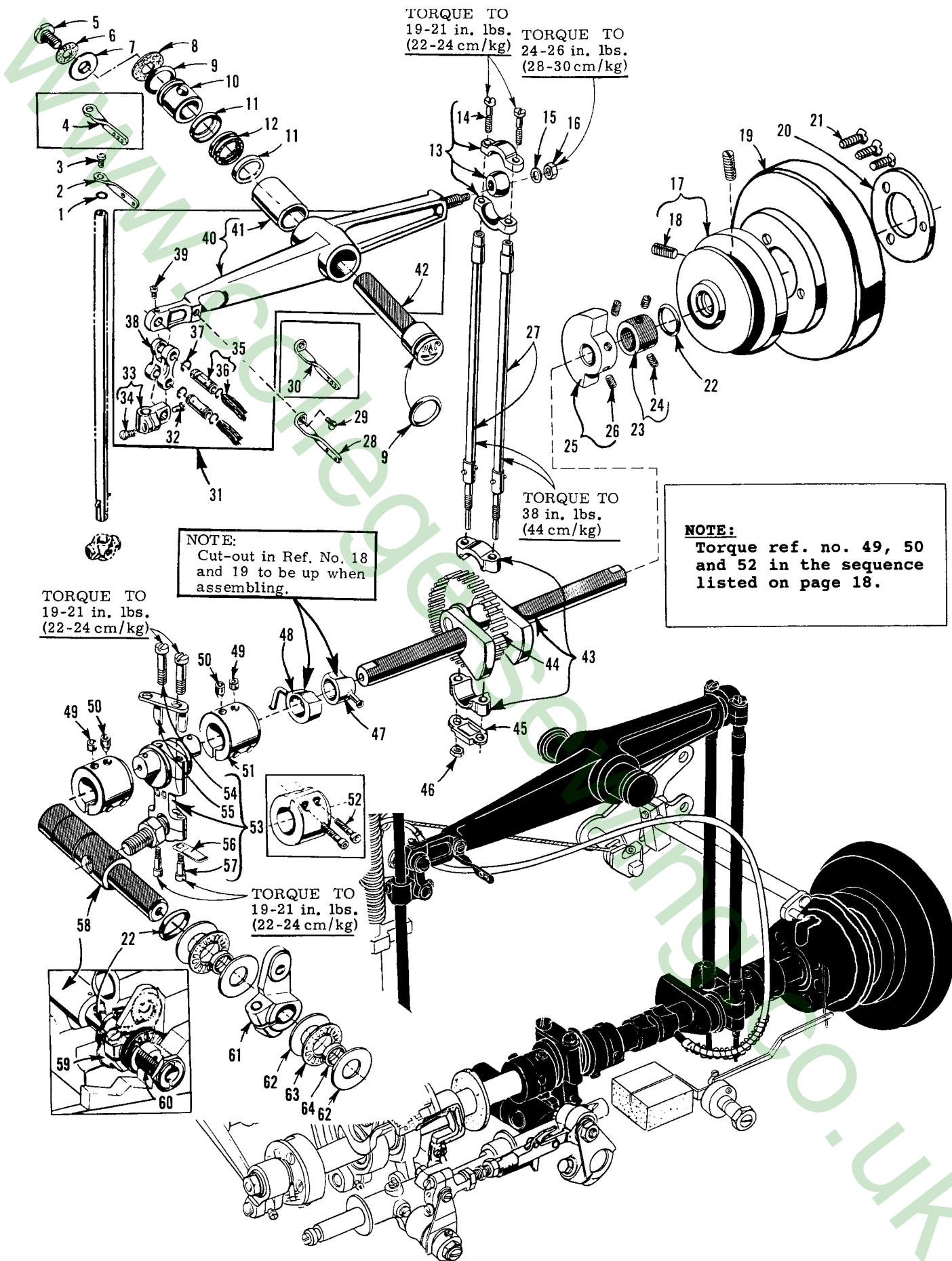
MAIN FRAME, THROAT PLATE SUPPORT, MISC. COVERS & OILING PARTS (CONT.)

| Ref. No. | Part No. | Description | Amt. Req. |
|----------|----------|--|-----------|
| 1. thru | 41. | See preceding page. | |
| 42. | 43296 | Base, nipper spring | 1 |
| 43. | 605A | Screw | 1 |
| 44. | 57WB | Nipper Spring Plate | 1 |
| 45. | 15438C | Spring | 1 |
| 46. | 57WD | Screw, nipper spring | 1 |
| 47. | 56958B | Eyelet | 1 |
| 48. | 99680 | Needle Lever Eyelet Guard | 1 |
| 49. | 96120 | Lockwasher | 1 |
| 50. | 22517C | Screw, for needle lever eyelet guard | 1 |
| 51. | 660-617 | Needle Lever Eyelet Gasket | 1 |
| 52. | 539 | Frame Needle Thread Eyelet | 1 |
| 53. | 22889A | Adapter Plug Screw | 1 |
| 54. | 20 | Washer | 1 |
| 55. | 22848 | Screw, for frame needle thread eyelet | 1 |
| 56. | 21375CA | Belt Guard | 1 |
| 57. | 22829 | Screw, for belt guard | 2 |
| 58. | 98A | Screw, for looper thread guard and eyelet | 3 |
| 59. | 158B | Looper Thread Eyelet, for Class 56500 | 1 |
| 60. | 158A | Looper Thread Eyelet, for Class 56900 | 1 |
| 61. | 56391A | Looper Thread Guard | 1 |
| 62. | 52958G | Looper Thread Eyelet | 1 |
| 63. | 21396BR | Needle Thread Lubricator Oil Reservoir | 1 |
| 64. | 660-73 | Oil Cup | 1 |
| 65. | 21396AL | Adapter | 1 |
| 66. | 660-75 | Coupling | 1 |
| 67. | 660-74 | Connecting Sleeve | 1 |
| 68. | 11638M | Nut | 1 |
| 69. | 22569C | Screw, for thread lubricator | 2 |
| 70. | 21396BP | Needle Thread Lubricator | 1 |
| 71. | 21396AG | Felt Pad | 2 |
| 72. | 21396BK | Needle Thread Lubricator Oil Reservoir Bracket | 1 |



MAIN FRAME, BUSHINGS, OIL GAUGE & LOOPER DRIVING PARTS

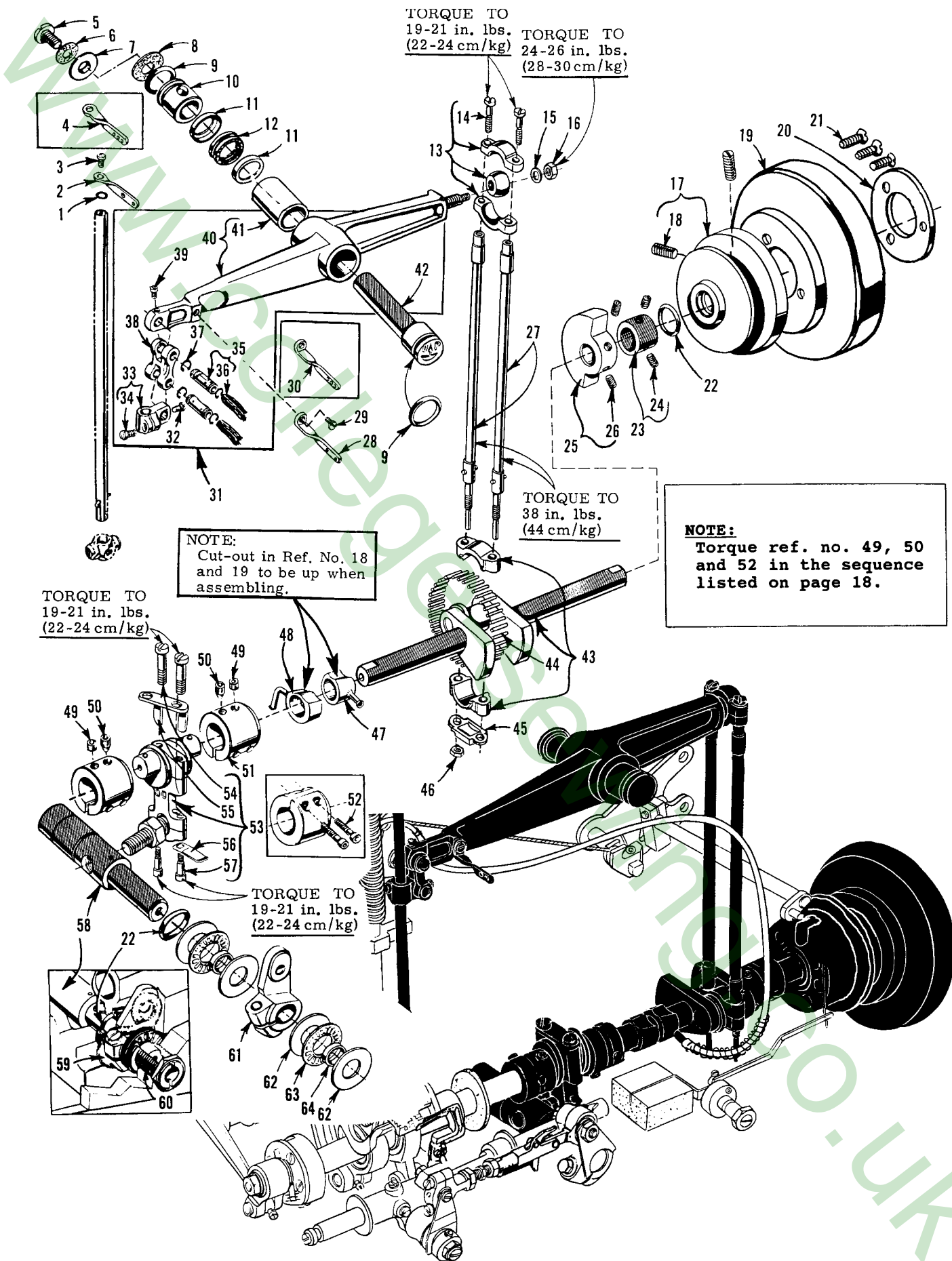
| Ref. No. | Part No. | Description | Amt. Req. |
|----------|-----------|--|-----------|
| 1. | 660-1002 | Oil Filter Plug Screw | 1 |
| 2. | 22541C | Screw, for chamber cover | 4 |
| 3. | 56382AM | Upper Crank Chamber Cover | 1 |
| 4. | 56382AY | Gasket, for chamber cover | 1 |
| 5. | 90 | Screw, for oiler and baffle plate assembly | 2 |
| 6. | 56382AC | Needle Lever Bearing Oiler and Baffle Plate Assembly | 1 |
| 7. | 56390H | Thrust Washer | 4 |
| 8. | 56390J | Pilot Ring | 2 |
| 9. | 660-665 | Needle Thrust Bearing | 2 |
| 10. | 22569B | Screw, for crankshaft bushing housing | 3 |
| 11. | 57890B | Crankshaft Bushing Housing | 1 |
| 12. | 56390E | Gasket, for bushing housing | 1 |
| 13. | 21657X | Tension Release Lever Shaft Bushing | 1 |
| 14. | 22539R | Plug Screw | 2 |
| 15. | 51-902BLK | Oil Sight Gauge | 1 |
| 16. | 56342D | Nut, for thrust adjusting screw | 1 |
| 17. | 52942AC | Thrust Adjusting Screw | 1 |
| 18. | 35897BV | Oil Intake Filter | 1 |
| 19. | 56393Q | Base Felt, rear | 1 |
| 20. | 56390G | Main Shaft Bushing, right | 1 |
| 21. | 51154E | Needle Bar Bushing, upper | 1 |
| 22. | 56393W | Oil Attraction Felt | 1 |
| 23. | 57836B | Feed Rocker Shaft Bushing | 2 |
| 24. | 666-259 | Felt | 1 |
| 25. | 56390 | Main Shaft Bushing, left | 1 |
| 26. | 50-895BLK | Looper Rocker Shaft Bushing | 2 |
| 27. | 56393P | Base Felt, front | 1 |
| 28. | 52942W | Looper Drive Lever Shaft Bushing, front | 1 |
| 29. | 56190 | Main Shaft Bushing, intermediate | 1 |
| 30. | 57842B | Looper Drive Lever Shaft Bushing, rear | 1 |
| 31. | 57954 | Needle Bar Bushing, lower | 1 |
| 32. | 51257AA | Presser Bar Bushing, lower | 1 |
| 33. | GR-56393T | Head Oil Pump Assembly | 1 |
| 34. | 56393L | Intake Felt | 1 |



CRANKSHAFT, NEEDLE LEVER & LOOPER DRIVING PARTS

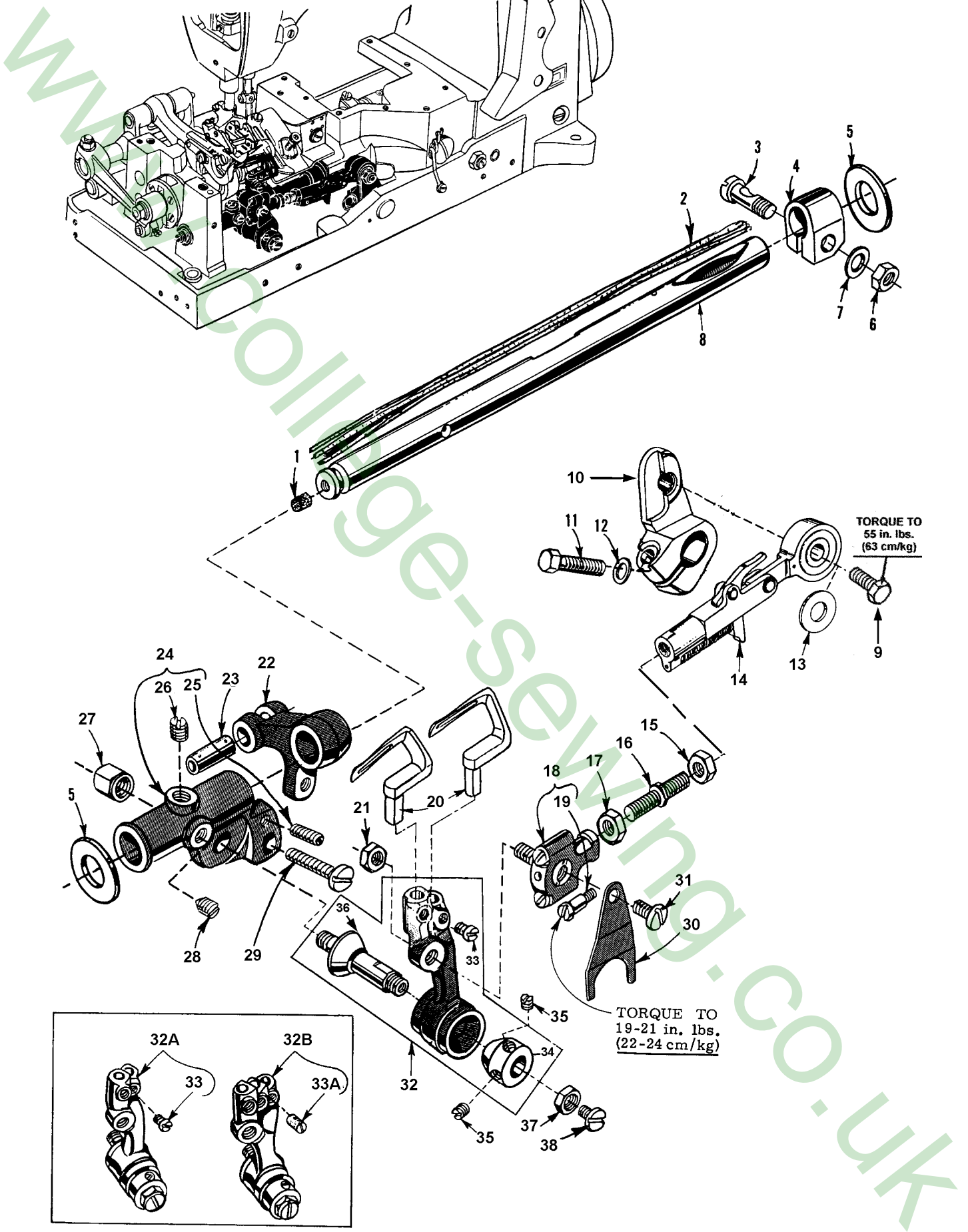
| Ref. No. | Part No. | Description | Amt. Req. |
|----------|-----------|--|-----------|
| 1. | 27-435BLK | Needle Bar Eyelet Washer | 1 |
| 2. | 56458A | Needle Bar Thread Eyelet, for Class 56500 | 1 |
| 3. | 22804 | Screw | 1 |
| 4. | 56958A | Needle Bar Thread Eyelet, for Class 56900 | 1 |
| 5. | 22586R | Screw | 1 |
| 6. | GR-51250V | Gasket | 1 |
| 7. | 51250D | Washer | 1 |
| 8. | 56382AK | Gasket | 1 |
| 9. | 660-625 | Oil Seal Ring | 2 |
| 10. | 56350E | Needle Lever Thrust Collar | 1 |
| 11. | 56350F | Compression Cup | 2 |
| 12. | 660-614 | Temper Load Ring | 1 |
| 13. | 29066R | Needle Lever Connecting Rod Upper Ball Joint Assembly | 1 |
| 14. | 22559G | Screw | 2 |
| 15. | 51216N | Washer | 1 |
| 16. | 51216P | Nut | 1 |
| 17. | 56321R | Pulley | 1 |
| 18. | 22894AB | Screw | 2 |
| 19. | 57821A | Handwheel | 1 |
| 20. | 61321L | Retaining Plate | 1 |
| 21. | 22574 | Screw | 4 |
| 22. | 660-202 | "O" Ring, for pulley and looper drive lever rocker shaft | 2 |
| 23. | 57847 | Thrust Collar | 1 |
| 24. | 95 | Screw | 2 |
| 25. | 51247 | Counterweight | 1 |
| 26. | 22894J | Screw | 2 |
| 27. | 56316 | Needle Lever Connecting Rod | 2 |
| 28. | 56458 | Needle Lever Thread Eyelet, for Class 56500 | 1 |
| 29. | 22768 | Screw | 1 |
| 30. | 56958 | Needle Lever Thread Eyelet, for Class 56900 | 1 |
| 31. | 29348AF | Needle Lever Assembly | 1 |
| 32. | 22564 | Screw | 1 |
| 33. | 51254K | Needle Bar Connection | 1 |
| 34. | 22562A | Screw | 1 |
| 35. | 52336 | Link Pin | 2 |
| 36. | WO3 | Yarn (6 Strands) | - |
| 37. | 660-215 | Retaining Ring | 4 |
| 38. | 56354D | Needle Bar Link | 1 |
| 39. | 77 | Screw | 1 |
| 40. | 56315A | Needle Lever | 1 |
| 41. | 56350G | Bushing | 1 |
| 42. | 56350D | Needle Lever Stud | 1 |

43. thru 64. See following page.



CRANKSHAFT, NEEDLE LEVER & LOOPER DRIVING PARTS CONT.

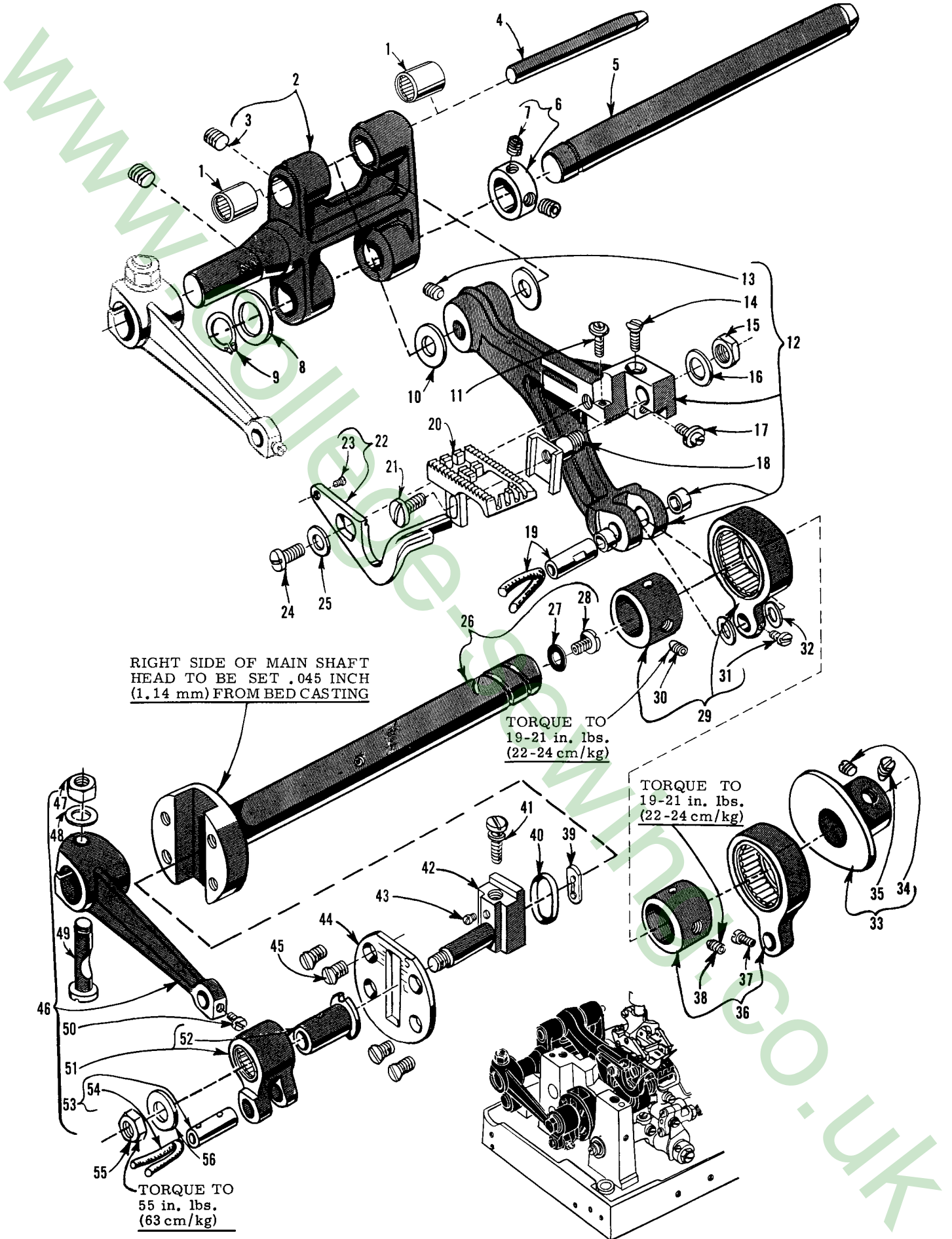
| Ref. No. | Part No. | Description | Amt. Req. |
|---------------------------------|----------|---|-----------|
| 1. thru 42. See preceding page. | | | |
| 43. | 29476LN | Crankshaft Assembly | 1 |
| 44. | 51216M | Needle Bearing | 28 |
| 45. | 56316C | Connecting Rod Guide | 1 |
| 46. | 12934A | Nut | 2 |
| 47. | | Head Oil Pump, ref. no. 44 on page 27 | 1 |
| 48. | | Base Oil Pump, ref. no. 23 on page 23 | 1 |
| 49. | 22894C | Set Screw | 2 |
| 50. | 22894D | Spot Screw | 2 |
| 51. | 56343F | Looper Drive Lever Coupling | 2 |
| 52. | 22653L8 | Screw | 2 |
| 53. | 29105AK | Looper Drive Lever Crank Assembly | 1 |
| 54. | 22587K | Bearing Cap Screw, upper | 2 |
| 55. | 56343C | Ball Joint Guide Fork | 1 |
| 56. | 56343E | Oil Splasher | 1 |
| 57. | 22559A | Bearing Cap Screw, lower | 2 |
| 58. | 52942AA | Looper Drive Lever Rocker Shaft | 1 |
| 59. | CL21 | Oil Wick | 1 |
| 60. | 52942AC | Thrust Adjusting Screw | 1 |
| 61. | 56342G | Looper Drive Lever | 1 |
| 62. | 56390H | Thrust Washer | 4 |
| 63. | 660-665 | Needle Thrust Bearing | 2 |
| 64. | 56390J | Pilot Ring | 2 |



LOOPER ROCKER & CONNECTING ROD PARTS

| Ref. No. | Part No. | Description | Amt. Req. |
|----------|----------|---|-----------|
| 1. | CO67E | Cork Plug | 1 |
| 2. | WO3 | Yarn (4 strands - 8 inches long) | - |
| 3. | 55244G | Looper Rocker Shaft Collar Stud | 1 |
| 4. | 51244N | Looper Rocker Shaft Clamp | 1 |
| 5. | 51244L | Thrust Washer | 2 |
| 6. | 18 | Nut | 1 |
| 7. | 51216N | Washer | 1 |
| 8. | 56344 | Looper Rocker Shaft | 1 |
| 9. | 627 | Looper Lever Stud | 1 |
| 10. | 56342K | Looper Drive Lever | 1 |
| 11. | 22882C | Screw | 1 |
| 12. | 51242M | Washer | 1 |
| 13. | 20 | Washer | 1 |
| 14. | 56341N | Looper Connecting Rod Jointed Section Assembly, right | 1 |
| 15. | 18 | Nut, right hand thread | 1 |
| 16. | 51240D | Looper Connecting Rod | 1 |
| 17. | 269 | Nut, left hand thread | 1 |
| 18. | 57841 | Looper Connecting Rod Ball Joint, left | 1 |
| 19. | 22729C | Screw | 2 |
| 20. | | Looper (see page 39) | - |
| 21. | 18 | Nut | 1 |
| 22. | 56344B | Looper Rocker Shaft Arm | 1 |
| 23. | 51236J | Looper Avoid Link Pin | 1 |
| 24. | 56344C | Looper Rocker Frame | 1 |
| 25. | 719 | Stop Screw | 1 |
| 26. | 98 | Screw | 1 |
| 27. | 51246 | Looper Rocker Stud Nut | 1 |
| 28. | 96 | Screw | 1 |
| 29. | 22874 | Looper Rocker Frame Lock Screw | 1 |
| 30. | 56393J | Looper Connecting Rod Ball Joint Oiler, left | 1 |
| 31. | 87U | Screw | 1 |
| 32. | | Looper Rocker Assembly (see chart below) | - |
| 33. | 73 | Screw, for Class 56500 | 2 |
| 33A. | 22565 | Screw, for Class 56900 | 3 |
| 34. | 15465F | Cone, Looper Rocker | 1 |
| 35. | 88 | Screw | 2 |
| 36. | 51745 | Stud, Looper Cone | 1 |
| 37. | 258A | Lock Nut | 1 |
| 38. | 22829 | Lock Nut Screw | 1 |

| Ref. No. | Ref. No. 32 Assembly | Machine Class | Amt. Req. |
|----------|----------------------|---------------|-----------|
| 32A | 29192AA | 56500 | 1 |
| 32B | 29192AF | 56900 | 1 |



RIGHT SIDE OF MAIN SHAFT HEAD TO BE SET .045 INCH (1.14 mm) FROM BED CASTING

TORQUE TO 19-21 in. lbs. (22-24 cm/kg)

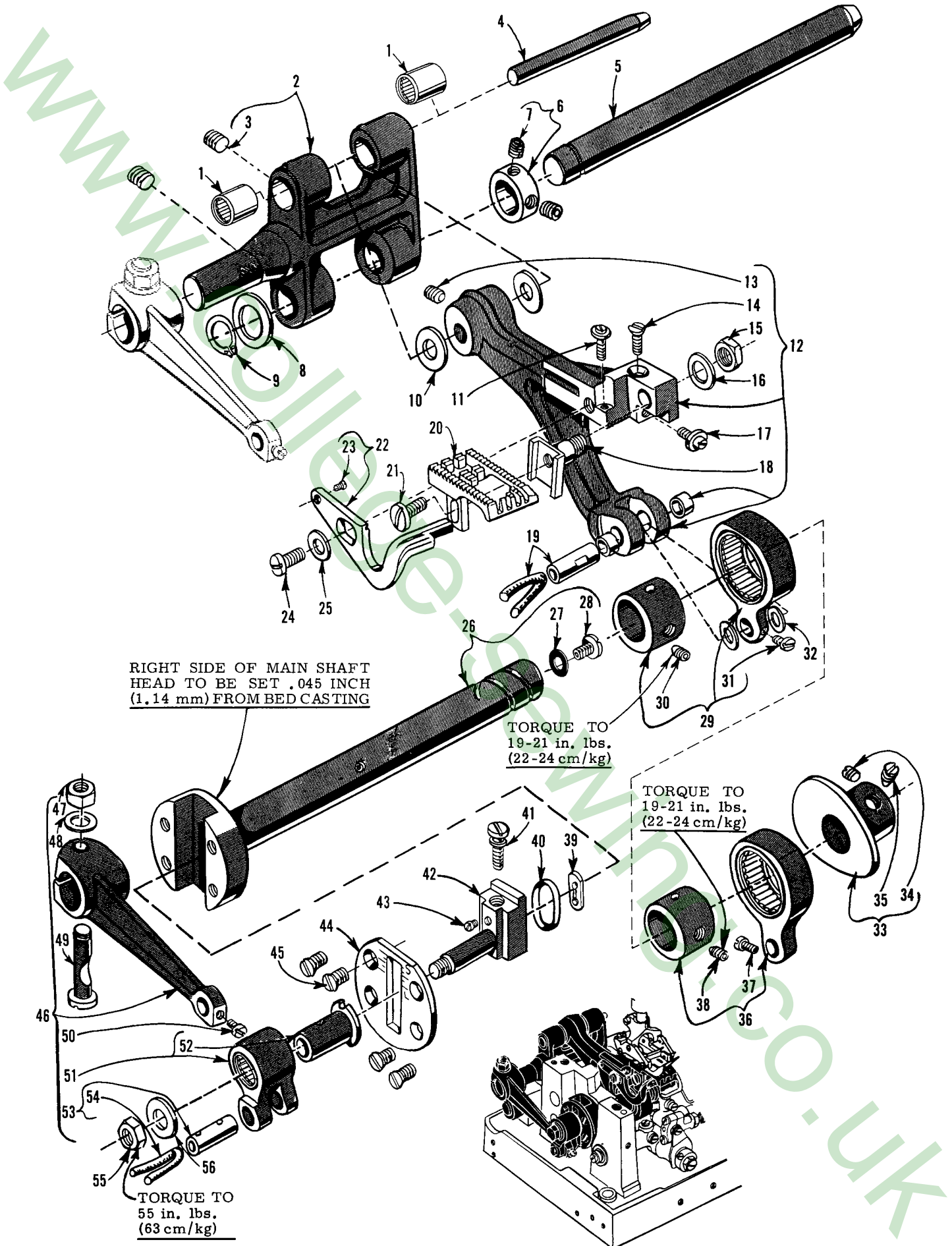
TORQUE TO 19-21 in. lbs. (22-24 cm/kg)

TORQUE TO 55 in. lbs. (63 cm/kg)

MAIN SHAFT, TAKE-UPS & FEED DRIVING PARTS

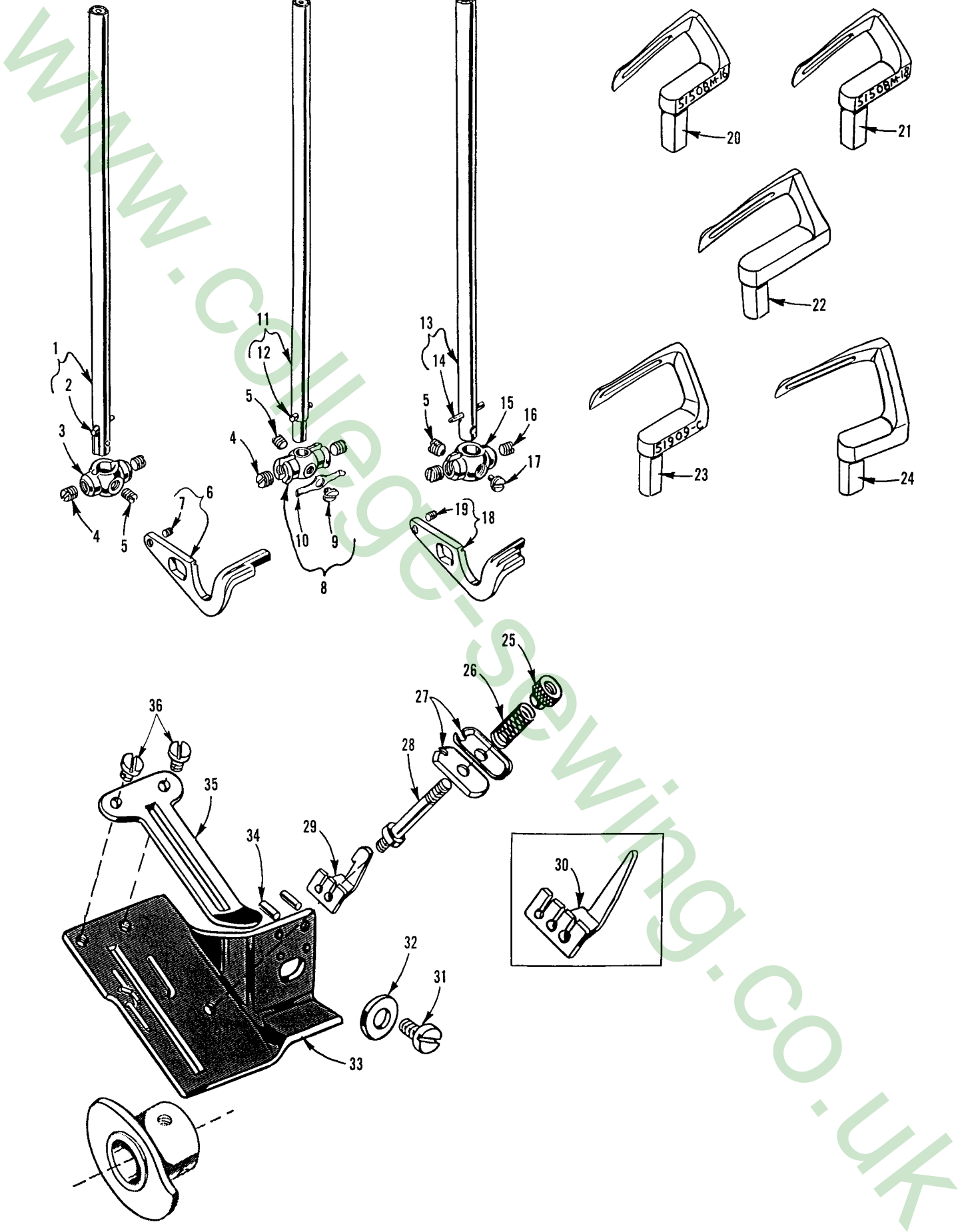
| Ref. No. | Part No. | Description | Amt. Req. |
|-------------|------------|---|--------------|
| 1. | 660-359 | Bearing, for feed rocker | 2 |
| 2. | 56335B | Feed Rocker | 1 |
| 3. | 22651CD4 | Screw, for feed bar shaft | 2 |
| 4. | 56334B | Feed Bar Shaft | 1 |
| 5. | 56335L | Feed Rocker Shaft | 1 |
| 6. | 56335D | Collar, for feed rocker shaft | 1 |
| 7. | 98 | Screw | 2 |
| 8. | 41391 | Washer | 1 |
| 9. | 660-438 | Retaining Ring | 1 |
| 10. | 61341J | Feed Bar Washer | 2 |
| 11. | 22834A | Needle Guard Adjusting Screw | 1 |
| 12. | 56334N | Feed Bar | 1 |
| 13. | 22651CB4 | Screw | 1 |
| 14. | 22637P24 | Feed Dog Height Adjusting Screw | 1 |
| 15. | 258A | Nut | 1 |
| 16. | 6042A | Washer, for feed dog holder | 1 |
| 17. | 22863C | Feed Dog Holder Adjusting Screw | 1 |
| 18. | 56334L | Feed Dog Holder | 1 |
| 19. | 51236J | Link Pin | 1 |
| 20. | | Feed Dog (see page 47, 49) | 1 |
| 21. | 22528 | Screw, for feed dog | 1 |
| 22. | | Needle Guard (see page 39) | 1 |
| 23. | 22801 | Screw | 1 |
| 24. | 22875H | Screw, for needle guard | 1 |
| 25. | 61434G | Washer, for needle guard screw | 1 |
| 26. | 56122A | Main Shaft | 1 |
| 27. | 56322B | Gasket | 1 |
| 28. | 22891B | Oil Flow Regulating Screw | 1 |
| 29. | 29476NM096 | Feed Lift Eccentric Assembly, for all Styles | 1 |
| 30. | 22894AA | Spot Screw | 1 |
| 31. | 77 | Screw, for link pin | 1 |
| 32. | 39543N | Thrust Washer, for feed bar | 2 |
| 33. | 56323 | Looper Thread Take-up | 1 |
| 34. | 22580D | Set Screw | 1 |
| 35. | 22764C | Spot Screw | 1 |
| 36. | 29476NM072 | Looper Avoid Eccentric Assembly, for all Styles | 1 |
| 37. | 77 | Screw, for link pin | 1 |
| 38. | 22894AA | Spot Screw | 1 |

39. thru 56. See following page.



MAIN SHAFT, TAKE-UPS & FEED DRIVING PARTS CONT.

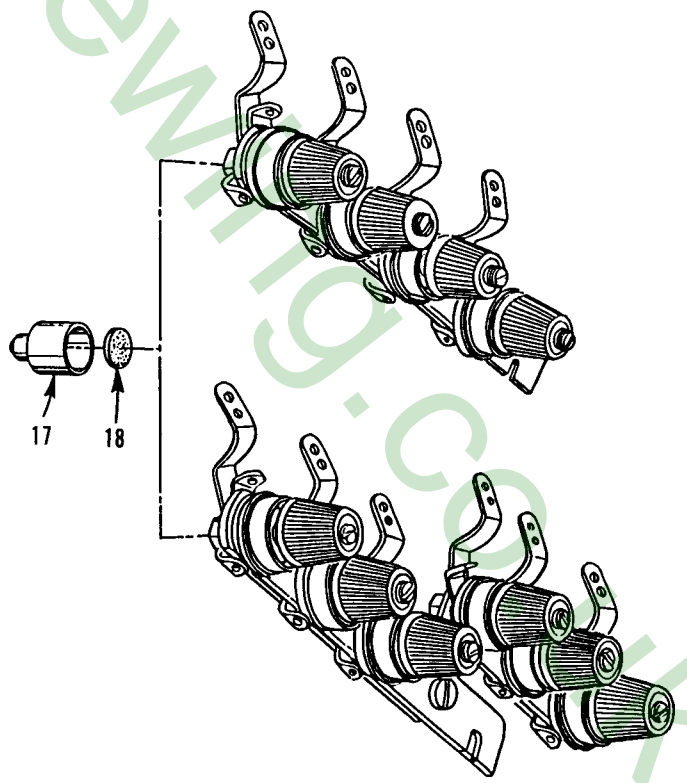
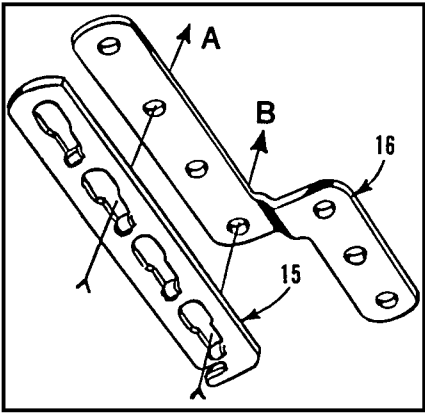
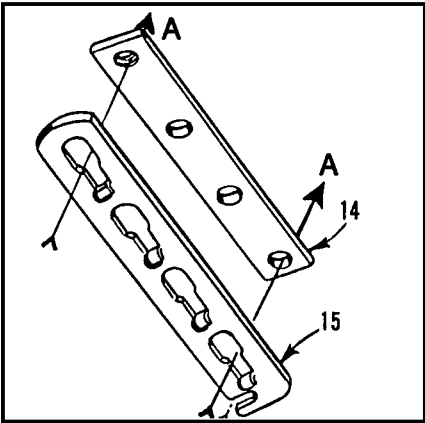
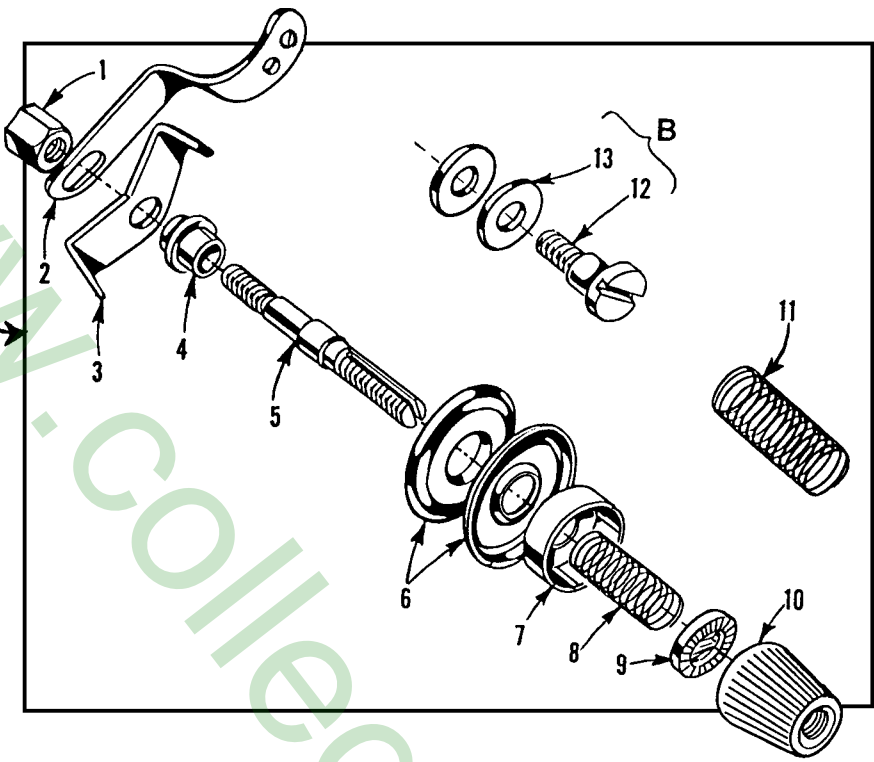
| Ref. No. | Part No. | Description | Amt. Req. |
|---------------------------------|----------|--|-----------|
| 1. thru 38. See preceding page. | | | |
| 39. | 56336D | Feed Crank Stud Insert | 1 |
| 40. | 660-269B | Quad Ring | 1 |
| 41. | 22543A | Stitch Regulating Screw | 1 |
| 42. | 56336 | Feed Crank Stud | 1 |
| 43. | 22798C | Screw | 1 |
| 44. | 56322C | Main Shaft Head Plate | 1 |
| 45. | 22525A | Screw | 4 |
| 46. | 56335S | Feed Rocker Arm and Feed Crank Link Sub-Assembly | 1 |
| 47. | 55235E | Nut | 1 |
| 48. | 6042A | Washer | 1 |
| 49. | 55235D | Locking Stud | 1 |
| 50. | 77 | Screw, for link pin | 1 |
| 51. | 56336K | Feed Crank Link | 1 |
| 52. | 56336C | Feed Crank Link Ferrule | 1 |
| 53. | 51054 | Feed Crank Link Pin | 1 |
| 54. | 666-149 | Oil Wick | 1 |
| 55. | 269 | Nut, left thread | 1 |
| 56. | 21657E | Washer | 1 |



NEEDLE BARS, HOLDERS & GUARDS, LOOPERS & LOOPER THREAD TAKE-UP PARTS

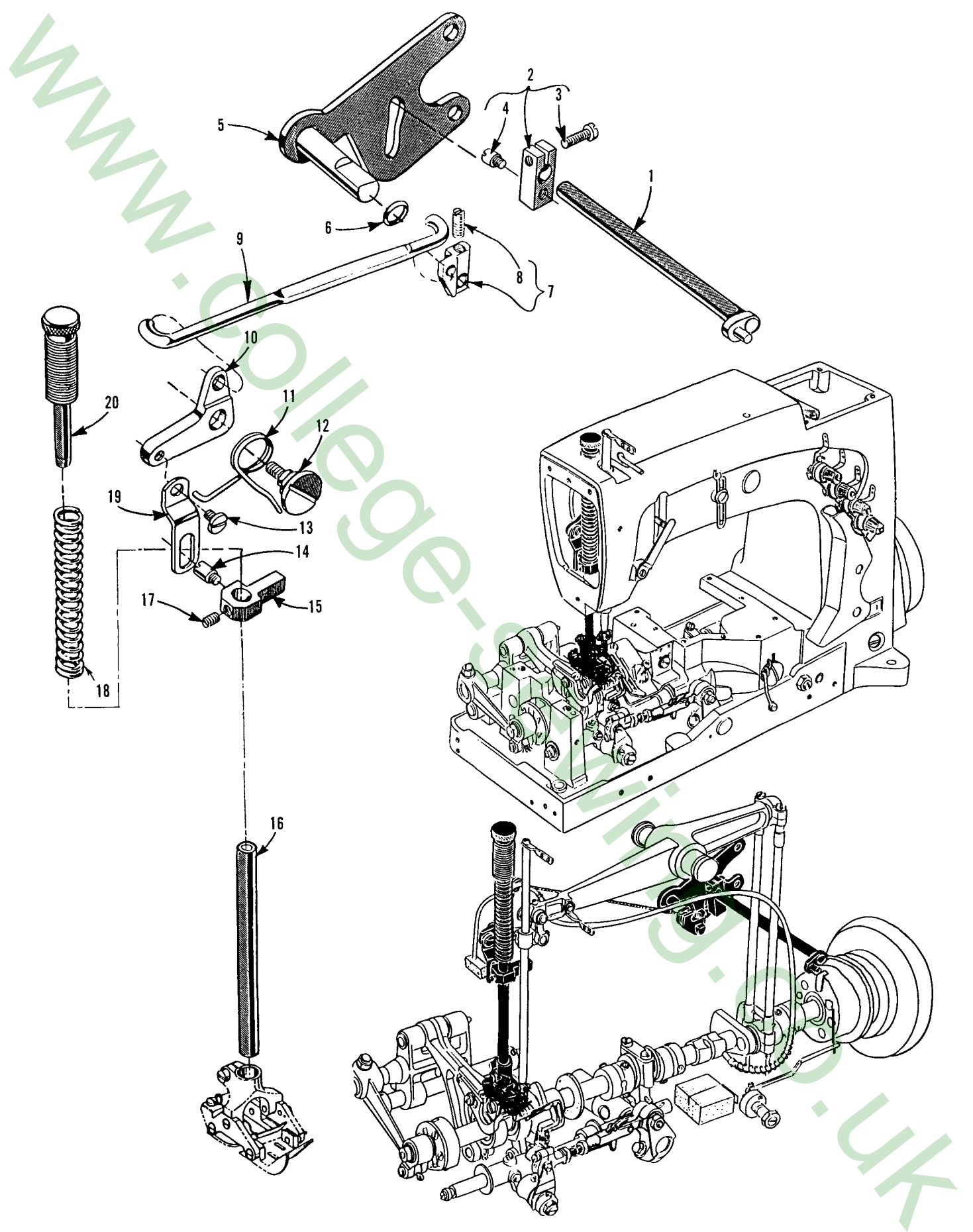
| Ref. No. | Part No. | Description | Amt. Req. |
|----------|-----------|---|-----------|
| 1. | 56517B16 | Needle Bar, for Style 56500R16 | 1 |
| 2. | 50J16 | Stop Pin | 1 |
| 3. | 51418-16 | Needle Holder, for Style 56500R16 | 1 |
| 4. | 98 | Screw, for needle | 2 |
| 5. | 89 | Spot Screw | 1 |
| 6. | 56525 | Needle Guard, for Class 56500, all gauges | 1 |
| 7. | 22801 | Screw | 1 |
| 8. | 7018E5 | Needle Holder, for Style 56500R18 | 1 |
| 9. | 187B | Screw | 1 |
| 10. | 7040-6 | Thread Guide | 1 |
| 11. | 56517B18 | Needle Bar, for Style 56500R18 | 1 |
| 12. | 50J16 | Stop Pin | 1 |
| 13. | 56917 | Needle Bar, for Class 56900, all gauges | 1 |
| 14. | 50J26 | Stop Pin | 1 |
| 15. | 35818N8 | Needle Holder, for Styles 56900P8, R8 | 1 |
| - | C50018B9 | Needle Holder, for Styles 56900P9, R9 | 1 |
| 16. | 22580 | Screw, for needle | 2 |
| 17. | 22752 | Screw, for center needle | 1 |
| 18. | 56925 | Needle Guard, for Class 56900, all gauges | 1 |
| 19. | 22801 | Screw | 1 |
| 20. | 51508M16 | Looper, front, for Style 56500R16 | 1 |
| 21. | 51508M18 | Looper, front, for Style 56500R18 | 1 |
| 22. | 51908B8 | Looper, front, for Style 56900P8, R8 | 1 |
| | 51908B9 | Looper, front, for Style 56900P9, R9 | 1 |
| 23. | 51909C | Looper, Middle, for Class 56900 and back looper for Class 56500 | 1 |
| 24. | 51909D8 | Looper, back, for Style 56900P8, R8 | 1 |
| | 51909D9 | Looper, back, for Style 56900P9, R9 | 1 |
| 25. | 51959D | Tension Nut | 1 |
| 26. | 51959K | Tension Spring | 1 |
| 27. | 51959B | Tension Disc | 2 |
| 28. | 51492 | Tension Post | 1 |
| 29. | 51459A | Looper Thread Guide, for Class 56500 | 1 |
| 30. | 51959J | Looper Thread Guide, for Class 56900 | 1 |
| 31. | 22528 | Screw | 1 |
| 32. | 21657E | Washer | 1 |
| 33. | 51457A | Take-up Shield | 1 |
| 34. | 50-216BLK | Dowel Pin | 2 |
| 35. | 52804A | Cast-off Plate | 1 |
| 36. | 28 | Screw | 2 |

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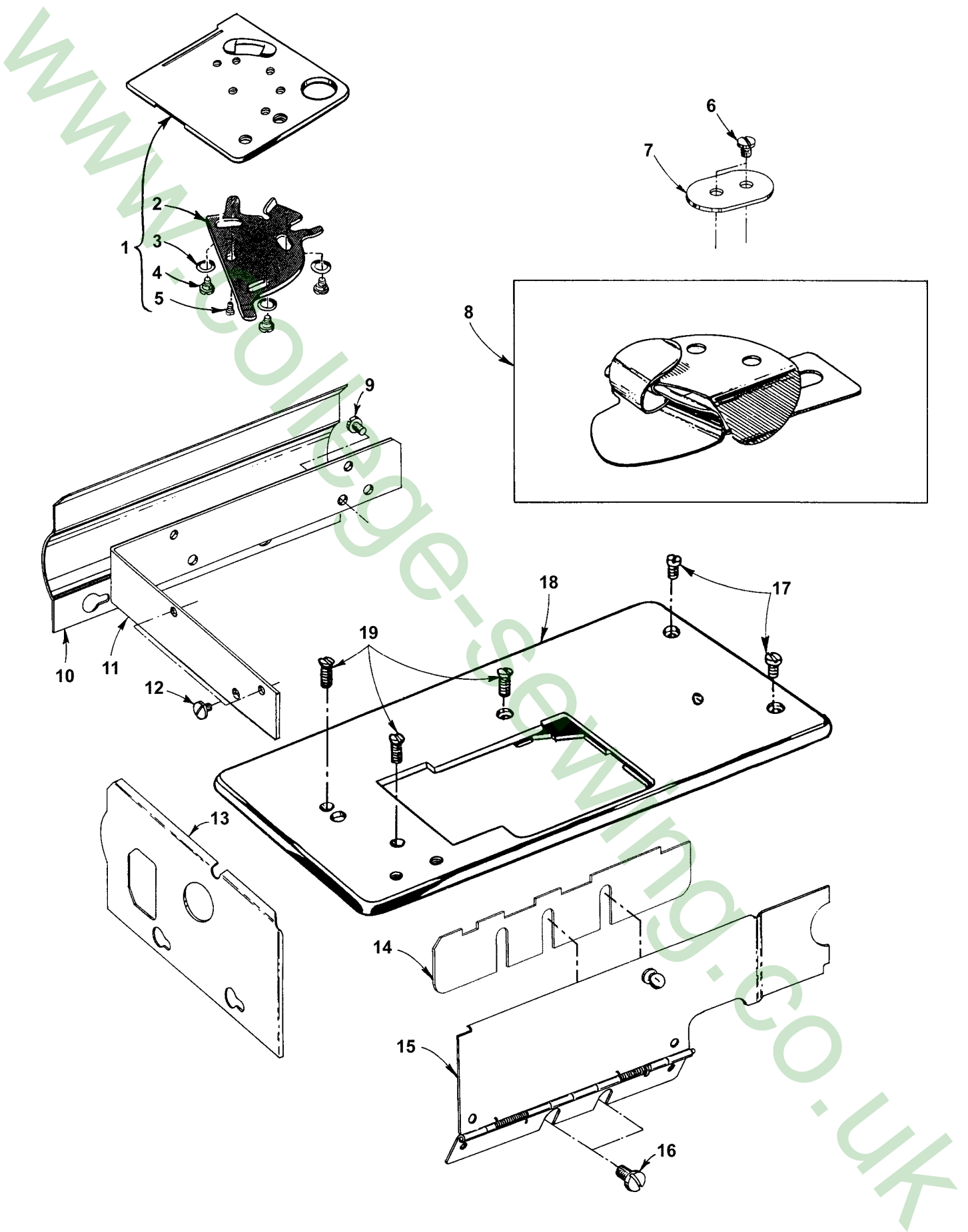
DISC THREAD TENSION PARTS

| Ref. No. | Part No. | Description | Amt. Req. Per Style | |
|----------|----------|---|---------------------|--------------|
| | | | Two Needle | Three Needle |
| 1. | 43266 | Nut | 2 | 5 |
| 2. | 51491C | Lead-in Guide | 4 | 6 |
| 3. | 51292D | Tension Thread Eyelet | 4 | 6 |
| 4. | 51292A | Ferrule | 4 | 6 |
| 5. | 56392E | Tension Post | 4 | 6 |
| 6. | 109 | Tension Disc | 8 | 12 |
| 7. | 56392F | Tension Spring Shield | 4 | 6 |
| 8. | 51292F8 | Needle Thread Tension Spring | 2 | 3 |
| 9. | 39592AK | Tension Spring Ferrule | 4 | 6 |
| 10. | 39592Z | Tension Nut | 4 | 6 |
| 11. | 51292F2 | Looper Thread Tension Spring | 2 | 3 |
| 12. | 22598C | Screw | | 1 |
| 13. | 80557 | Washer | | 2 |
| 14. | 56382X | Tension Post Support, for Class 56500 | 1 | |
| 15. | 21657-4 | Tension Disc Separator, for all Styles | 1 | 1 |
| 16. | 51992A | Tension Post Support, for Class 56900 | | 1 |
| 17. | 59292 | Auxiliary Tension Post Support, for al Styles | 1 | 1 |
| 18. | 59292A | Felt Washer, for auxiliary tension post support | as required | |



TENSION & LIFTER LEVER PARTS

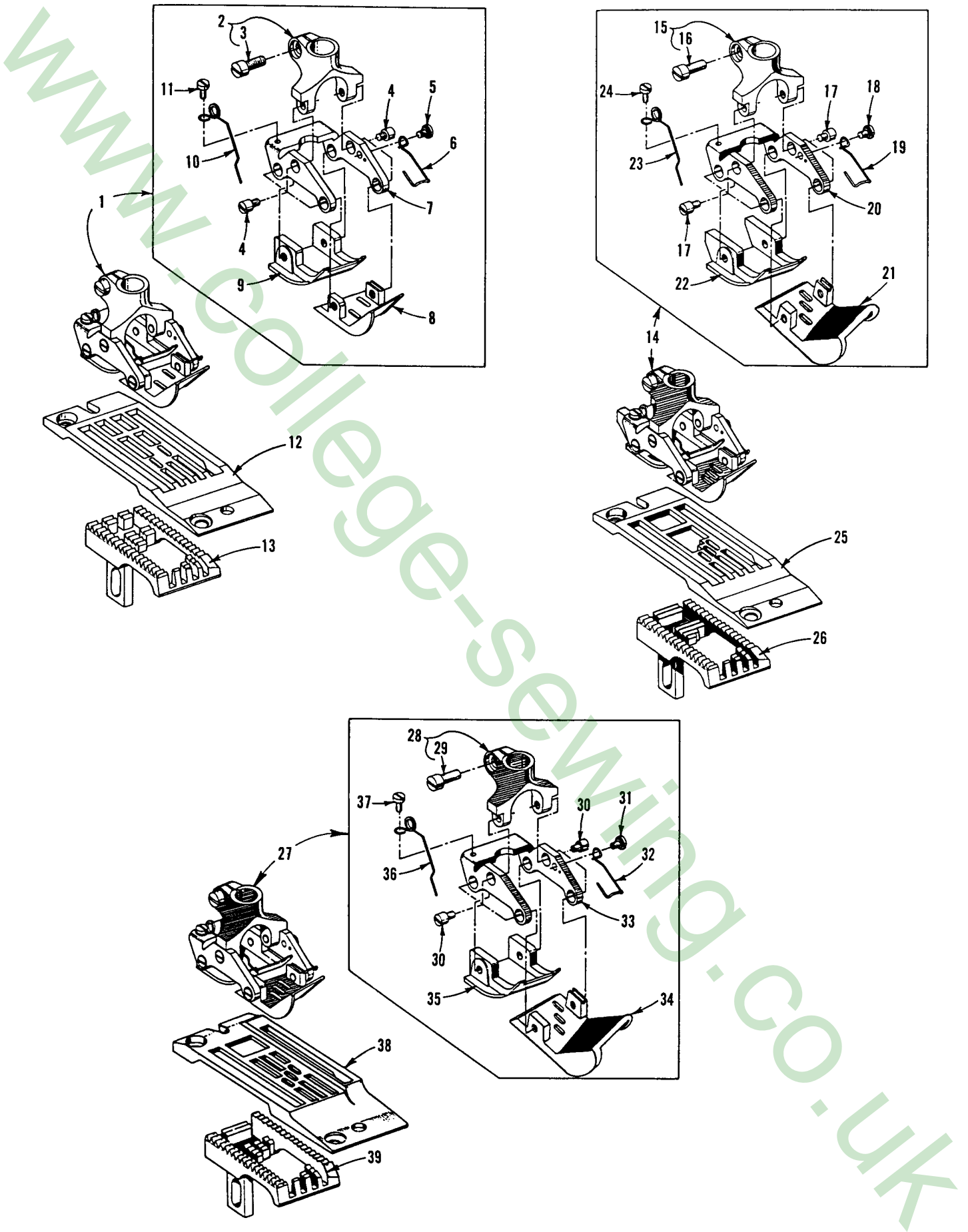
| Ref. No. | Part No. | Description | Amt. Req. |
|-------------|----------|---|--------------|
| 1. | 21657W | Tension Release and Lifter Lever Shaft | 1 |
| 2. | 21657Y | Tension Release and Lifter Lever Shaft Connection | 1 |
| 3. | 22569 | Screw | 1 |
| 4. | 402 | Screw | 1 |
| 5. | 51283H | Lifter Lever | 1 |
| 6. | 660-207 | Oil Seal Ring | 1 |
| 7. | 53783N | Lifter Lever Connection | 1 |
| 8. | 22537 | Screw | 1 |
| 9. | 56383AB | Lifter Lever Connecting Rod | 1 |
| 10. | 56383AA | Lifter Lever Bell Crank | 1 |
| 11. | 56383D | Lifter Lever Bell Crank Spring | 1 |
| 12. | 22557G | Screw | 1 |
| 13. | 22758C | Screw | 1 |
| 14. | 402 | Screw | 1 |
| 15. | 51257M | Presser Bar Connection and Guide | 1 |
| 16. | 51957E | Presser Bar | 1 |
| 17. | 22569F | Screw | 1 |
| 18. | 53787 | Presser Spring | 1 |
| 19. | 56383A | Lifter Lever Link | 1 |
| 20. | 56356 | Presser Spring Regulator | 1 |



CLOTH PLATE, CLOTH PLATE COVER, FOLDER & OIL SHIELD PARTS

| Ref. No. | Part No. | Description | Amt. Req. |
|----------|------------|---|-----------|
| 1. | 56381-207A | Cloth Plate Cover | 1 |
| 2. | 51281AC | Cloth Plate Cover Spring | 1 |
| 3. | 35772H | Spring Washer | 3 |
| 4. | 22760A | Screw, for spring washer | 3 |
| 5. | 22845B | Screw | 1 |
| 6. | 25C | Screw, for washer plate | 2 |
| 7. | 23425V | Washer Plate | 1 |
| 8. | | Double Lap Seam Feller Assembly (see chart below) | 1 |
| 9. | 22848 | Screw, for oil shield bracket | 3 |
| 10. | G51381BD | Oil Shield, rear | 1 |
| 11. | G51382BA | Bracket, for oil shield | 1 |
| 12. | 99295 | Screw, for oil shields, rear, left | 4 |
| 13. | G51381BA | Oil Shield, left | 1 |
| 14. | 52978Z | Shim Stop | 1 |
| 15. | 51282AJ | Hinged Oil Shield | 1 |
| 16. | 25S | Screw, for hinged oil shield | 2 |
| 17. | 22839C | Screw, for cloth plate | 2 |
| 18. | 56401C | Cloth Plate | 1 |
| 19. | 22526C | Screw, for cloth plate | 3 |

| | | 56500R16 | 56500R18 | 56900P8 | 56900P9 | 56900R8 | 56900R9 |
|--------------|-----|----------|----------|---------|---------|---------|---------|
| 23420S8 3/32 | | X | | X | | X | |
| 23420S9 3/32 | | | X | | X | | X |
| 23420S8 1/8 | STD | X | | X | | X | |
| 23420S9 1/8 | STD | | X | | X | | X |
| 23420S8 5/32 | | X | | X | | X | |
| 23420S9 5/32 | | | X | | X | | X |

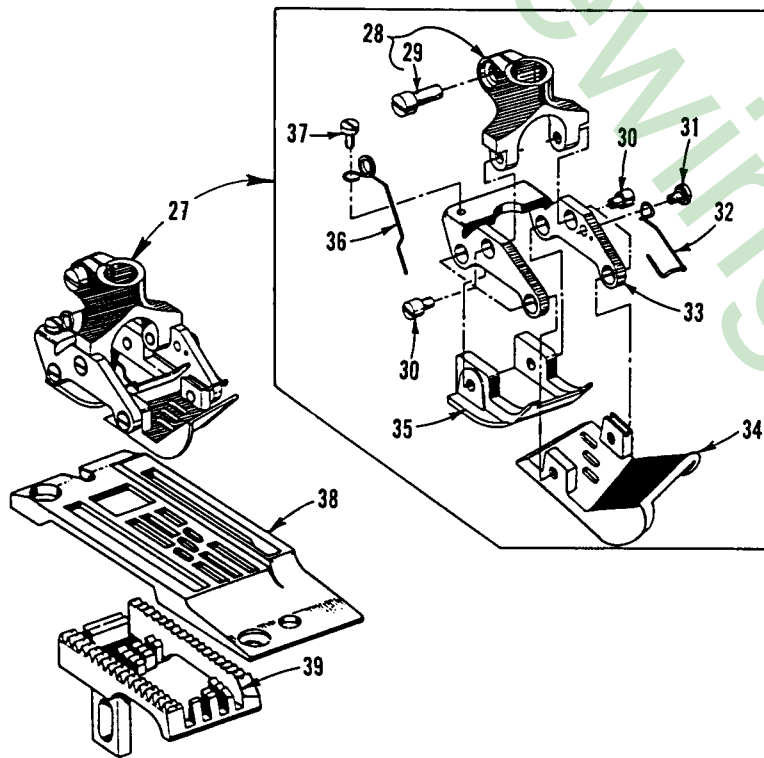
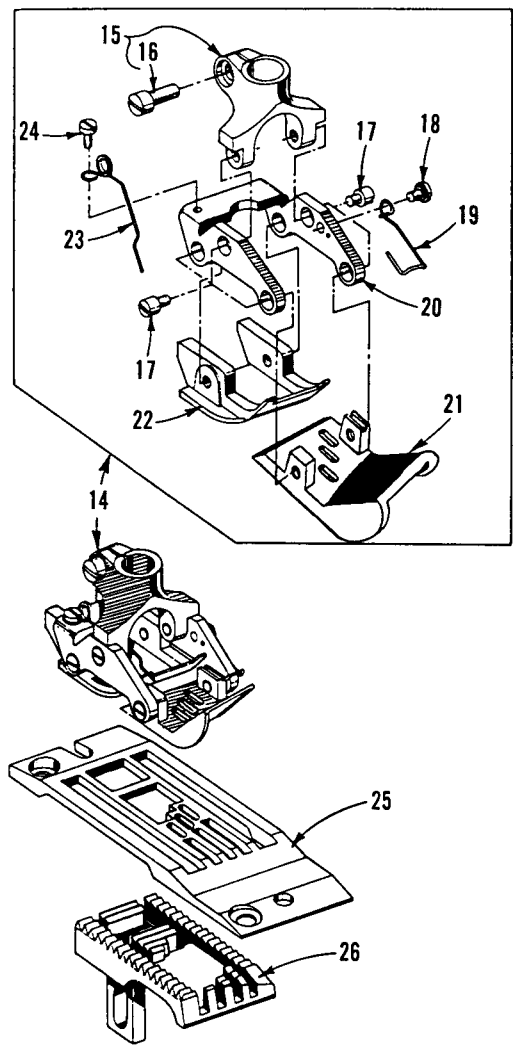
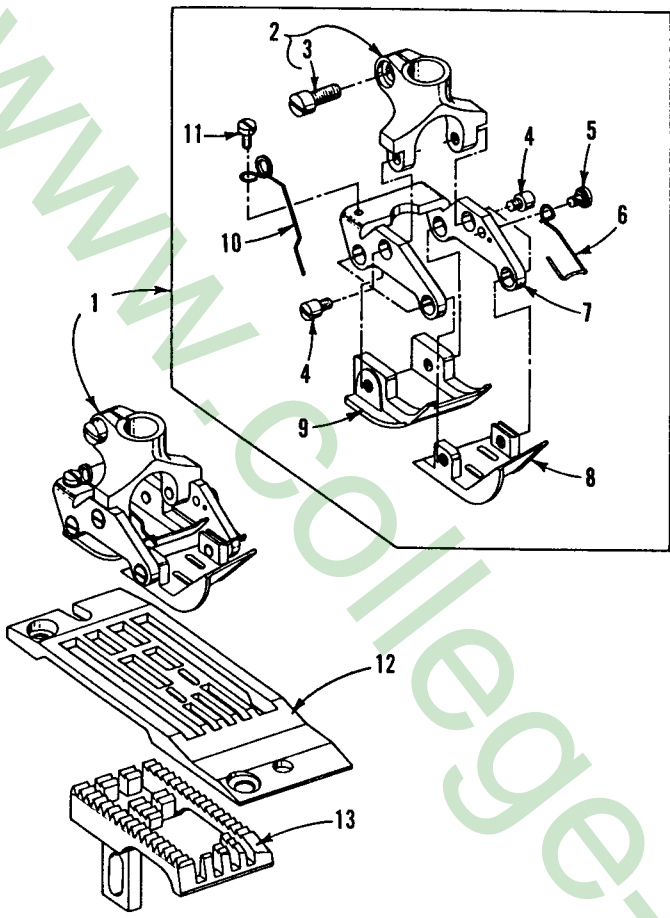


PRESSER FOOT, THROAT PLATE & FEED DOG PARTS

| Ref. No. | Part No. | Description | Amt. Req. |
|----------|-----------|---|-----------|
| 1. | C50020F16 | Presser Foot Assembly, for Style 56500R16 | 1 |
| - | C50020E18 | Presser Foot Assembly, for Style 56500R18 | 1 |
| 2. | 35830B | Shank, for presser foot | 1 |
| 3. | 22585R | Screw, for shank | 1 |
| 4. | 22845A | Screw, for yoke | 6 |
| 5. | 22599 | Screw, for spring | 1 |
| 6. | 35830K | Spring | 1 |
| 7. | 35830C | Yoke | 1 |
| 8. | C50030AD | Bottom, presser foot (front section) for Style 56500R16 | 1 |
| - | C50030AE | Bottom, presser foot (front section) for Style 56500R18 | 1 |
| 9. | C50030AC | Bottom, presser foot (rear section) for Style 56500R16 | 1 |
| - | 56930 | Bottom, presser foot (rear section) for Style 56500R18 | 1 |
| 10. | 35830H | Spring | 1 |
| 11. | 73A | Screw, for spring | 1 |
| 12. | C50024R16 | Throat Plate, for Style 56500R16 | 1 |
| - | C50024U18 | Throat Plate, for Style 56500R18 | 1 |
| 13. | C50005N | Feed Dog, for Styles 56500R16, R18 | 1 |
| 14. | 50320M8 | Presser Foot Assembly, for Style 56900P8 | 1 |
| - | 56920A9 | Presser Foot Assembly, for Style 56900P9 | 1 |
| 15. | 35830B | Shank, for presser foot | 1 |
| 16. | 22585R | Screw, for shank | 1 |
| 17. | 22845A | Screw, for yoke | 6 |
| 18. | 22599 | Screw, for spring | 1 |
| 19. | 35830K | Spring | 1 |
| 20. | 35830C | Yoke | 1 |
| 21. | 35830R8 | Bottom, presser foot (front section) for Style 56900P8 | 1 |
| - | 35830R9 | Bottom, presser foot (front section) for Style 56900P9 | 1 |
| 22. | 50330BF8 | Bottom, presser foot (rear section) for Style 56900P8 | 1 |
| - | 56930 | Bottom, presser foot (rear section) for Style 56900P9 | 1 |
| 23. | 35830H | Spring | 1 |
| 24. | 73A | Screw, for spring | 1 |
| 25. | 50324N8 | Throat Plate, for Style 56900P8 | 1 |
| - | C56924A9 | Throat Plate, for Style 56900P9 | 1 |
| 26. | 56905A9 | Feed Dog, for Styles 56900P8, P9 | 1 |

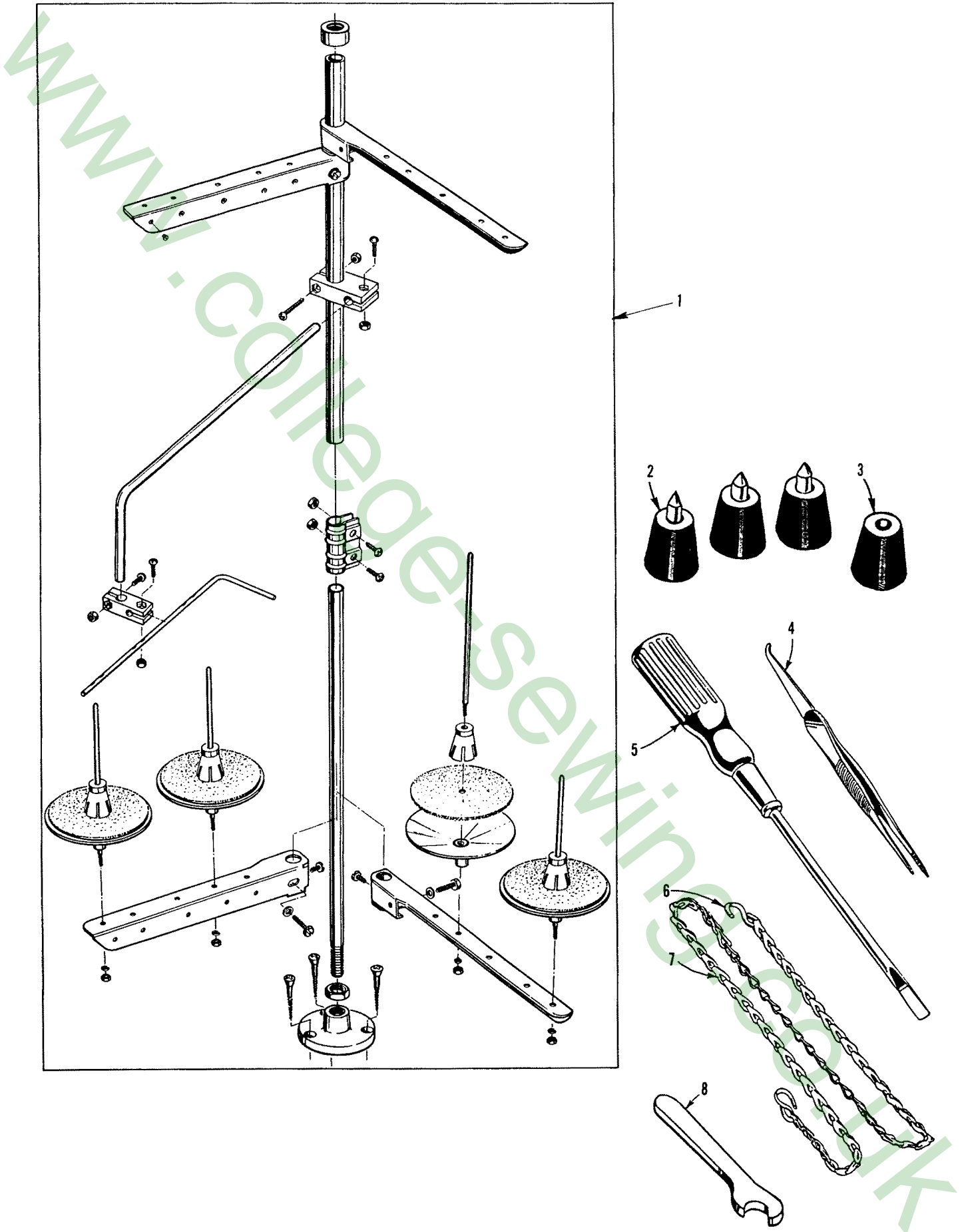
27. thru 39. See following page.

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PRESSER FOOT, THROAT PLATE & FEED DOG PARTS

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| 1. thru 26. See preceding page. | | | |
| 27. | 50320N8 | Presser Foot Assembly, for Style 56900R8 | 1 |
| - | 56920R9 | Presser Foot Assembly, for Style 56900R9 | 1 |
| 28. | 35830B | Shank, for presser foot | 1 |
| 29. | 91D | Screw, for shank | 1 |
| 30. | 22845A | Screw, for yoke | 6 |
| 31. | 22599 | Screw, for spring | 1 |
| 32. | 35830K | Spring | 1 |
| 33. | 35830C | Yoke | 1 |
| 34. | 50330BE8 | Bottom, presser foot (front section) for Style 56900R8 | 1 |
| - | 35830S9 | Bottom, presser foot (front section) for Style 56900R9 | 1 |
| 35. | 50330BG8 | Bottom, presser foot (rear section) for Style 56900R8 | 1 |
| - | 56930B | Bottom, presser foot (rear section) for Style 56900R9 | 1 |
| 36. | 35830H | Spring | 1 |
| 37. | 73A | Screw, for spring | 1 |
| 38. | 50324P8 | Throat Plate, for Style 56900R8 | 1 |
| - | C56924R9 | Throat Plate, for Style 56900R9 | 1 |
| 39. | 56905R9 | Feed Dog, for Styles 56900R8, R9 | 1 |



THREAD STAND PARTS & MISC. ACCESSORIES

| Ref. No. | Part No. | Description | Amt. Req. |
|----------|------------|---|-----------|
| 1. | GR-21101W4 | Thread Stand Assembly, for 4-thread machines | 1 |
| - | GR-21101W6 | Thread Stand Assembly, for 6-thread machines | 1 |
| 2. | 51295B | Isolator | 3 |
| 3. | 51295A | Isolator | 1 |
| 4. | 12288403 | Thread Tweezers | 1 |
| 5. | 21201 | Screwdriver, 9/64 inch round blade, overall length 7 11/16 inches | 1 |
| 6. | 660-264 | "S" Hook, for all Styles | 1 |
| 7. | 421D34 | Treadle Chain, 34 inches long, for all Styles | 1 |
| 8. | 21388 | Wrench, 3/8 inch open end, for all Styles | 1 |

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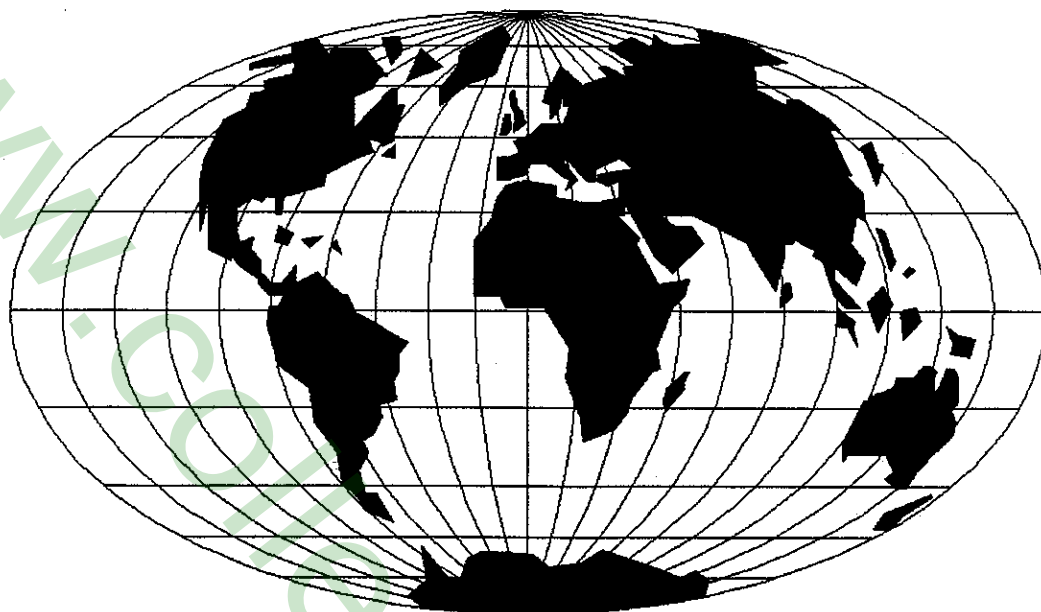


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