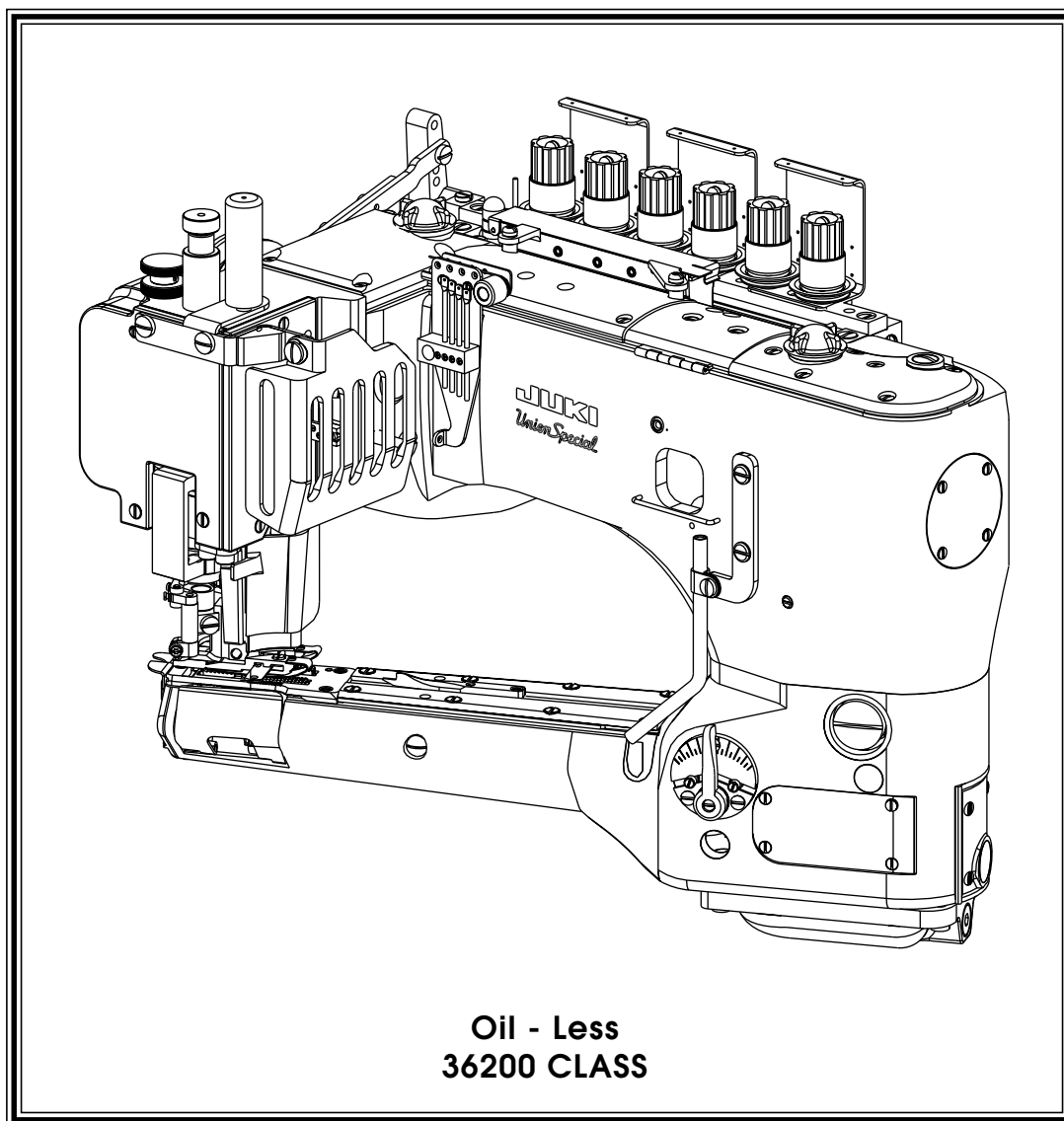


ADJUSTING INSTRUCTIONS / ILLUSTRATED PARTS LIST



**MANUAL NO. PT0405-GR
FOR STYLES**

36200L100-52	36200L100-60
36200L200-52	36200L200-60
36200L202-52	36200L201-60
36200L210-52	36200L202-60
36200T300-52	36200L210-60
36200U300-52	36200T300-60
	36200U300-60

Manual No. PT0405-GR Illustrated Parts List for 36200 Series Machines

First Edition Copyright 2006

By

Union Special Corporation Rights Reserved In All Countries

Printed in U.S.A. August 2006

PREFACE

This parts manual has been prepared to assist you in locating individual parts or assemblies on 36200 Series machines.

It is the desire of Union Special that each machine run at its optimum performance. Parts listed in this manual are designed specifically for your machine and are manufactured with utmost precision to assure long lasting service.

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

On the following pages are illustrations and terminology used in describing the parts used on 36200 Series machines.

IDENTIFICATION OF MACHINES

Each UNION SPECIAL machine is identified by a style number, which is stamped into the style plate affixed to the middle of the machine under the tension assembly.

The serial number is stamped on a plate attached to the right rear top of the machine.

CONTENTS

PREFACE	2
IDENTIFICATION OF MACHINES	2
DESCRIPTION OF MACHINES	4
REPLACEMENT PARTS	6
SAFETY RULES:	7
ILLUSTRATIONS	8
IDENTIFYING PARTS	8
NEEDLES	8
APPLICATION	8
TORQUE REQUIREMENTS	8
INSTALLATION	9
OILING	9
THREADING	10
ADJUSTING INSTRUCTIONS	11
SETTING THE NEEDLE BAR HEIGHT & ALIGNMENT	11
SETTING THE NEEDLE BAR HEIGHT & ALIGNMENT (CONT)	12
ALIGNING THE CYLINDER	12
SETTING THE LOOPER TRAVEL USING GAUGE 21227CN	12
INSTRUCTIONS FOR USING SYNCHRONIZING GAUGE 21227CG	13
SETTING THE LOOPER TRAVEL	13
TIMING THE NEEDLES TO THE LOOPER	13
TIMING THE NEEDLES TO THE LOOPER (CONT.)	14
LOOPER ADJUSTMENTS	15
LOOPER ADJUSTMENTS (CONT.)	16
SETTING THE FRONT NEEDLE GUARD	16
SETTING THE FEED DOGS	16
SETTING THE REAR NEEDLE GUARD	17
SETTING THE STITCH LENGTH	17
DIFFERENTIAL FEED CONTROL	17
SETTING THE PRESSER FOOT	17
SETTING THE PRESSER FOOT (CONT.)	18
SETTING THE PRESSER FOOT (CONT.)	19
SETTING THE KNIFE DRIVE LEVER	19
SETTING THE KNIFE DRIVE LEVER (CONT.)	20
SETTING THE TRIMMING KNIVES FOR FLAT SEAMING (STYLES 36200L100-52, L100-60, T300-52, T300-60, U300-52, U300-60)	20
SETTING THE TRIMMING KNIVES FOR LAP SEAMING (STYLES 36200L100-52, L100-60, L200-52, L200-60, L202-52, L202-60, L210-52, L210-60, U300-52, U300-60)	20
SETTING THE TRIMMING KNIVES (ALL STYLES) (CONT.)	21
NEEDLE THREAD ADJUSTMENTS	21
LOOPER THREAD ADJUSTMENT	22
COVER THREAD ADJUSTMENT	22
TENSION RELEASE	22
HUNG FOOT ADJUSTMENT	23
SETTING THE LAP FORMER	23
LAP SEAMING	23
REPLACING PRESSER FOOT SHOES	24
OIL SIGHT GAUGES, TOP COVERS & MISCELLANEOUS TAKEUP & EYELET PARTS	27
MAIN FRAME, BUSHINGS & MISCELLANEOUS EYELET & COVER PARTS	29
MAIN SHAFT & MISCELLANEOUS OILING	31
CRANKSHAFT & NEEDLE LEVER PARTS	33
TENSION PARTS	35
DETACHABLE HEAD, HEAD COVERS, NEEDLE BAR & NEEDLE BAR HEAD	37
DETACHABLE HEAD, HEAD COVERS, NEEDLE BAR & NEEDLE BAR HEAD	39
DIFFERENTIAL & MAIN FEED BARS, FEED DOGS & FEED LIFT ECCENTRIC ASSEMBLY	41
FEED DRIVE ASSEMBLY, FEED ROCKER & LOOPER AVOID PARTS	43
KNIFE DRIVING PARTS	45
LOOPER ROCKER SHAFT & LOOPER ROCKER DRIVE PARTS	47
LAP FORMER, MISCELLANEOUS CYLINDER COVERS, THROAT PLATE, & CHAIN CUTTING KNIFE	49
CYLINDER BUSHINGS, DIFFERENTIAL FEED CONTROL ASSEMBLY & MISCELLANEOUS CYLINDER COVERS	51
PRESSER FOOT FOR STYLES 36200L200-52, L200-60, L201-60, L210-52, L210-60, U300-52, U300-60	53
PRESSER FOOT FOR STYLES 36200L100-52, L100-60, T300-52, T300-60, U300-52, U300-60	55
PRESSER FOOT FOR STYLES 36200L202-52, L202-60	57
PRESSER FOOT SHOE CHART	58
PRESSER FOOT SHOE CHART	59
THREAD STAND	61
MISCELLANEOUS GAUGES & TAPE REEL PARTS	63
THREAD LUBRICATOR	65
NUMERICAL INDEX OF PARTS	66
NUMERICAL INDEX OF PARTS	67

DESCRIPTION OF MACHINES

Universal style, Feed-off-the-arm, high speed, medium throw, five or six thread machine. There are four needles and one retainer abreast, one looper and a manually adjusted differential feed control. There is an enclosed automatic lubricating system, filter type oil return pump, visual sight oil action and supply gauges. The maximum work space in front of the needles is 8 inches (203.2mm). Recommended maximum speed - 4200 R.P.M. for all Styles. Machines can be used on either table or pedestal mount.

36200 -

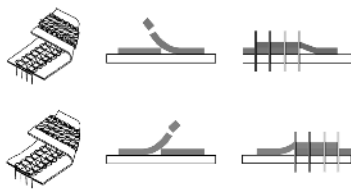
Code	Application
L	Lap Seaming: machine produces an overlapped seam. Available only as L100, L200, L201, L202, L210. (Note: the L100 series can also be selected for producing a flat or butt seam.)
T	Tape Seaming: machine produces a tape over seam. Available only as T300.
U	Multipurpose: machine produces two seams—an overlapped seam, and a flat (butt) seam. Note: this style comes with two different presser feet—one presser foot for one side fabric trim lapseaming or side fabric trimming flat (butt) seaming, and a second presser foot for two side fabric trimming lapseaming. Available only as U300.

Code	Needle Gauge
52	Spacing between outside needles is 5.2mm. (Available on any style except L201.)
60	Spacing between outside needles is 6.0mm. (Available on any style.)

Code	Trim
1	Only one side of the fabric is trimmed. Available only as L100.
2	Both sides of the fabric are trimmed. Available only as L200, L201, L202, L210.
3	Either one side of the fabric or both sides of the fabric can be trimmed, on the same machine. Available only as T300, U300.

Submodels	
Code	Parts
00	For seaming or taping a wide variety of light to medium heavy weight knit products such as polo and T-shirts, polar fleece jackets, fleece sweatshirts and sweatpants, ladies' panties and men's briefs, etc. Machine uses standard flat sewing parts. Available only as L100, L200, T300, U300.
01	For seaming the same products as 00 but with thread burner is being used. Available only as L201.
02	For closing the crotch of light to medium weight knit boxer briefs with wide leg binding. Machine uses special presser foot with changeable guide plates, wide yielding section and special presser foot shoes for wide binding, throat plate with long feed slots, and long fine tooth feed dogs. Available only as L202.
10	For seaming and crotch closing medium heavy to heavy weight knit briefs with leg binding. Machine uses standard 1.2mm stepped sewing parts. Available only as L210.

LAPSEAMING



36200L100-52/60

4 Needle One Side Trim Lapseamer

Fitted with one side fabric trimming lapseam presser foot, edge guide and spreader.

Standard: Trimming right side of fabric edge, left side fabric edge trimming can also be done by moving edge guide.

For closing the crotch of briefs and panties, sleeves of T-shirts and polo shirts, etc.

36200L200-52/60

4 Needle Both Side Trim Lapseamer

Fitted with both side fabric trimming presser foot, lap former and spreader, to achieve smooth even seams on top and bottom of fabric.

For side seaming swimsuits, jogging pants, biking shorts, knitted jackets and T-shirts, and crotch seaming briefs and panties.



36200L201-60

Same as 36200L200, except with large cover thread hook and long presser bar for use with thread burner.

36200L202-52/60

4 Needle Both Side Trim Lapseamer

Fitted with special both side fabric trimming sewing combination, lap former and spreader, to achieve smooth, even seams on top and bottom of fabric.

Specifically for knit boxer briefs.

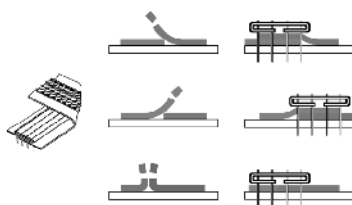


36200L210-52/60

4 Needle Both Side Trim Lapseamer for Heavy Weight Fabrics

Fitted with both side fabric trimming 1.2mm stepped presser foot, throat plate and feed dogs, lap former and spreader. For crotch seams with binding on briefs.

JOINING & TAPING



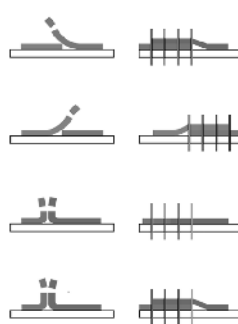
36200T300-52/60

4 Needle Seamer for Attaching Tape

Fitted with one side fabric trimming or both side fabric trimming presser foot without spreader, and taping folder. folder uses 3/4" (19mm) tape with 3/8" (9.5mm) finish.

For attaching the tape on the front fly of briefs, thermal underwear and similar garments.

MULTIPURPOSE: LAPSEAMING & FLATSEAMING



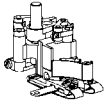
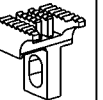
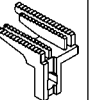
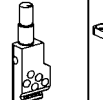
36200U300-52/60

4 Needle Multipurpose Seamer for Lapseaming and Flatseaming

Fitted with one side fabric trimming lapseam or both side fabric trimming flatseam presser foot, edge guide and spreader. Includes both side fabric trimming lapseam presser foot, lap former and spreader.

For closing crotch of briefs and panties, side seaming swimsuits, jogging pants, biking pants, knitted jackets and T-shirts, etc.

REPLACEMENT PARTS

36200 Replacement Styles and Spare Parts Matrix										
NEW STYLE	REPLACES STYLE	REPLACES STYLE	PRESSER FOOT	THROAT PLATE	MAIN FEED	DIFF. FEED	NEEDLE HEAD	LAP FORMER	EDGE GUIDE	FOLDER
36200L100-52	36200UA52	36200PA/TA	36220A	C36224A	36205A	36226A	36218A52		36203	
36200L100-60	36200UJ60	36200PJ/TJ	36220K	C36224J	36205A	36226A	36218A60		36203	
36200L200-52	36200UE52		36220E	C36224A	36205A	36226A	36218A52	23420DB		
36200L200-60	36200UE60		36220W	C36224J	36205A	36226A	36218A60	23420DB		
36200L201-60		36200TL	36220V	C36224N	36205M	36226A	36218A60	23420CZ		
36200L202-52	36200UY52		36220AE	C36224P	36205N	36226K	36218A52	23420DJ		
36200L202-60	36200UY60		36220AF	C36224Q	36205N	36226K	36218A60	23420DJ		
36200L210-52	36200UH52	36200PH/TH	36220H	36224H	36205H	36226H	36218A52	23420DB		
36200L210-60	36200UM60	36200PM/TM	36220M	36224K	36205J	36226J	36218A60	23420DB		
36200T300-52	36200UX52	36200PX/TX	36220B	C36224A	36205A	36226A	36218A52		36203	23401P-7/16
36200T300-60	36200UX60		36220B	C36224J	36205A	36226A	36218A60		36203	23401P-7/16
36200U300-52	36200UAE52		36220A 36220E	C36224A	36205A	36226A	36218A52	23420DB	36203	
36200U300-60	36200UJE60		36220K 36220W	C36224J	36205A	36226A	36218A60	23420DB	36203	

SAFETY RULES:

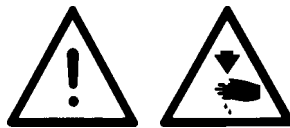
1. Before putting the machines described in this manual into service, carefully read the instructions. The starting of each machine is only permitted after taking notice of the instructions and by qualified operators.

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.

ILLUSTRATIONS

This manual 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, description 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 the part in the illustration. The reference number 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. As an example refer to the following text.

9.	29126 EC	Upper Looper Drive Shaft Assembly	1
10.	22503 F	Screw	1
11.	39543 E	Cam Follower Locking Clamp	1

It will be noted in the previous example that the cam follower, bushing and cam guide and the upper looper drive shaft are not listed. The reason is that replacement of these parts individually is not recommended, so the complete upper looper drive shaft assembly should be ordered.

When a part is common to all machines covered in this manual, no specific usage will be mentioned in the description. However, when the parts for the various machines are not the same, the specific usage will be mentioned in the description and, if necessary, the difference will be shown in the illustration.

A numerical index of all the parts shown in this manual is located at the back. This will facilitate locating the illustration and description when only a 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 similar ones.

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

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 the largest diameter of the blade measured between the shank and the eye. Collectively, the type number and size number represent the complete symbol which is given on the label of all needles packed and sold by Union Special.

<u>TYPE</u>	<u>DESCRIPTION</u>
118GAS	Extra short, double groove, struck groove, .060" diameter shank, chromium plated needle. Sizes available 065/025, 070/027, 075/029, 080/032, 090/036.
118GBS	Extra short, single groove, struck groove, spotted .060" diameter shank, chromium plated needle. Sizes available 075/029, 080/032.
118GHS	Same as 118GBS, except with ball point. Sizes available 070/027, 075/029, 080/032.
118GJS	Same as 118GHS, except with tapered blade and ball point. Sizes available 065/025, 070/027, 075/029.
118GKS	Round shank, round point, extra short, double groove, struck groove, spotted, chromium plated needle. Sizes available 070/027, 075/029, 080/032.
36211	Retainer needle, no scarf, chromium plated. Sizes available 065/025, 070/027, 075/029.

APPLICATION

When changing the needle, make sure it is fully inserted in the needle driving arm before the clamp screw is tightened.

To have needles promptly and accurately filled, an empty package, a needle sample, or the type and size number should be forwarded. Use the description on the label. A complete order should read as follows: "100 needles, type 118 GKS, size 075/029".

TORQUE REQUIREMENTS

Torque (measured in inch-pounds) is a rotating force (in pounds applied through a distance by a lever (in inches or feet). This is accomplished by a wrench, screwdriver, etc. Many of these devices are available, which when set at the proper amount of torque will tighten the part to the correct amount and no tighter.

All straps and eccentrics should be tightened to 19-21 inch-pounds (22-24cm/kg) unless otherwise noted.
All other nuts, bolts, screws, etc. should be tightened by hand as tightly as possible, unless otherwise noted.

INSTALLATION

Make sure that the Machine is LEVEL when attaching to the installation (table or pedestal), or if machine is moved to a new location.

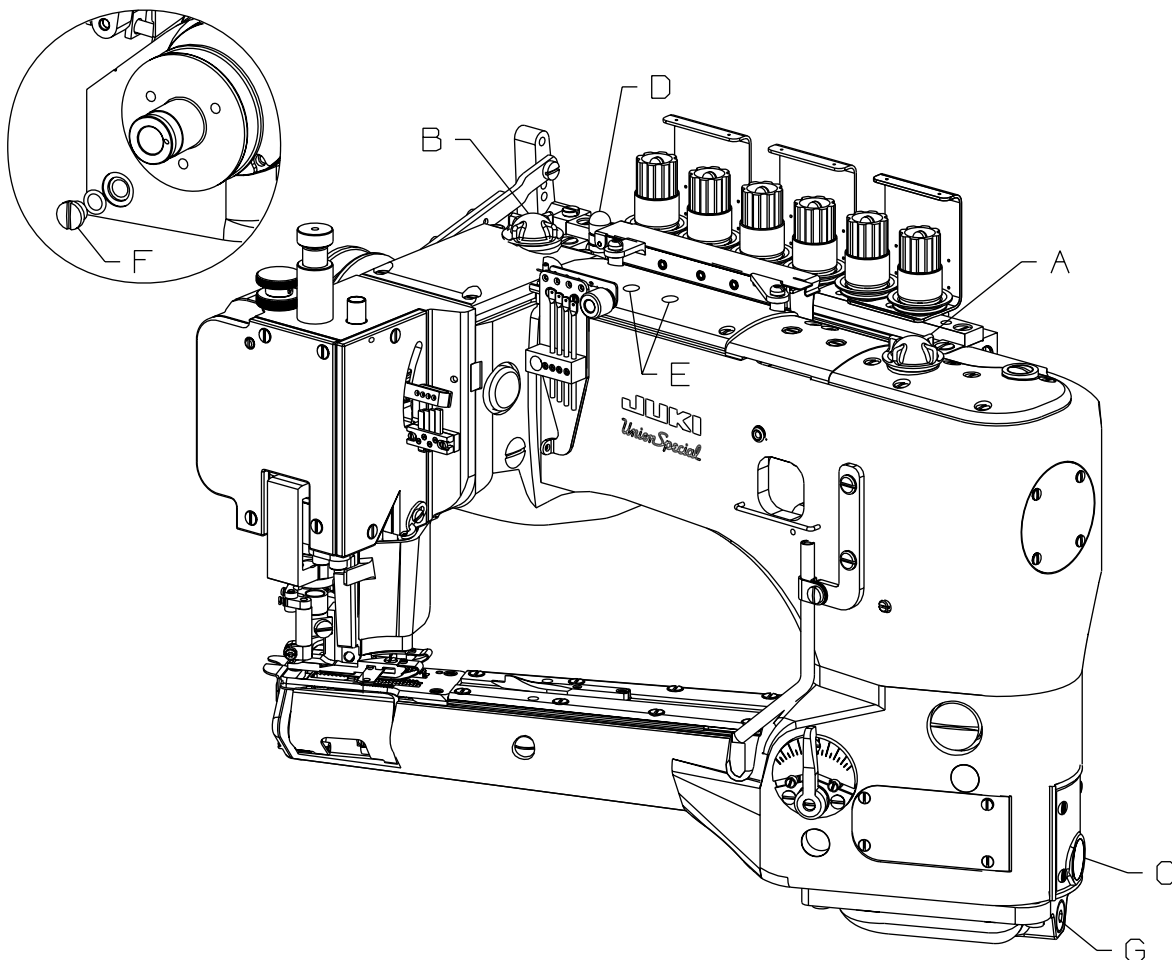
OILING

Referring to Fig. 1, fill the machine at (A) and (B). Oil capacity of class 36200 is 2.5 ounces in the bottom reservoir and 2.5 ounces in the top reservoir. Use a straight mineral oil, Saybolt viscosity of 90 to 125 seconds at 100° Fahrenheit (Union Special Spec 175 part no. 28604R). The oil level is checked at gauges (C) and (D). Maintain oil level between the red lines of these gauges.

This machine is automatically lubricated by a continuously driven rotary pump. Oil flow can be observed through windows (A) and (B). When installing a new machine or starting a machine that has been idle for some time, priming may be necessary. Remove plug screws (E), fill holes with recommended oil and replace screws **BEFORE** operating. If oil does not flow while machine is running, pump is inoperative.

Remove screw 22733B (F, Fig. 1 inset) to drain oil from the top reservoir. To drain oil from bottom reservoir remove screw 999-196 (G).

Occasionally, it is necessary to oil the linkage of the presser foot, the knife holder shank (36273A), guide collar (36273K) and the various links and bearings of the presser foot lifting mechanism and thread tension release.



THREADING

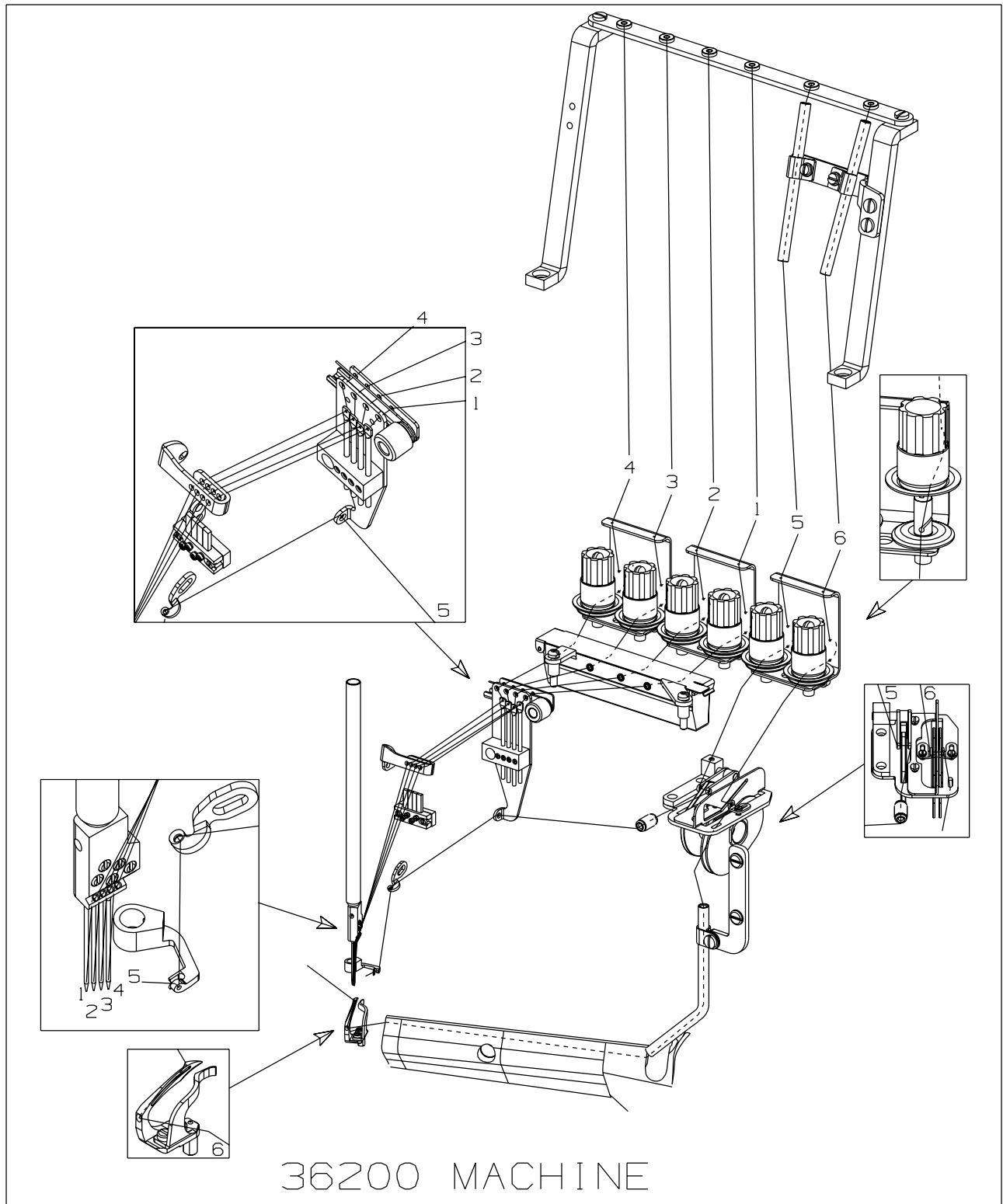


FIG. 1

ADJUSTING INSTRUCTIONS

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 clockwise in operating direction.

SETTING THE NEEDLE BAR HEIGHT & ALIGNMENT

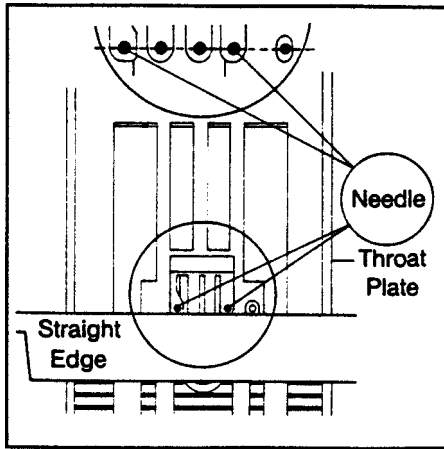


FIG. 2

Insert the first (left) and fourth needles into the needle head. The needles for this Class of machine are made with two flats on the front of the shank. This will enable you to correctly position the needles in the needle head. Make certain the needle shank is fully inserted and that the screw is seated firmly on the flat.

To position the needle head square with the throat plate, use the upper knife or a straight edge to align the needles with the cross grooves in the throat plate. (See Fig. 2)

Refer to table 1 for the dimension from the fourth (lowest) needle to the surface of the throat plate and for the number of the needle bar height gauge.

STYLE	DIMENSION FROM 4TH (LOWEST) NEEDLE TO THROAT PLATE SURFACE	NEEDLE BAR HEIGHT GAUGE NUMBER	NEEDLE HEIGHT GAUGE STEP MARKED
52 GAUGE	17/32" (13.5MM)	21227BU	.531
60 GAUGE	1/2" (12.7MM)	21227DS	.500

TABLE 1

Position the needle bar at its highest point of travel. Loosen needle bar clamp screw (A, FIG.3) & use the specified needle bar height gauge (B) to achieve the desired height dimension from the fourth (lowest) needle (C) to the throat plate surface (D). Tighten clamp screw (A) and recheck setting. Care must be taken not to disturb the needle head alignment while making the adjustment. Add the two middle needles and the retainer.

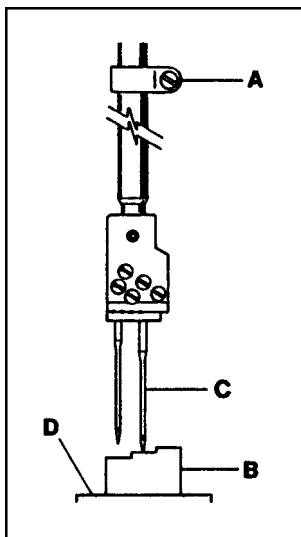


FIG. 3

CAUTION: If the needle head has been replaced it must be torqued to 17 in. lbs. (20cm/kg). After tightening, check for expansion of the needle bar by positioning it up into the lower bushing hole. If the bar has expanded it will bind in the bushing. The bar must be replaced or lapped to reduce the bell shape. Align and set needle bar height as described above.

SETTING THE NEEDLE BAR HEIGHT & ALIGNMENT (CONT)

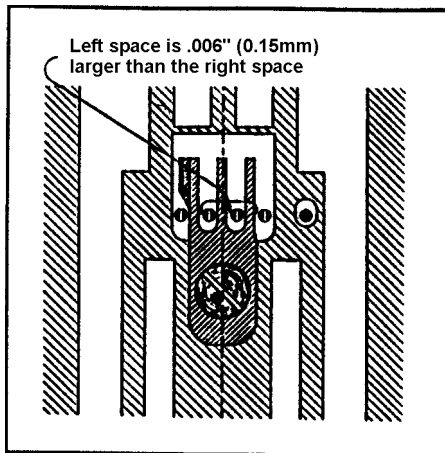


FIG. 4

Correct spacing of the needles in the throat plate stitch tongue is imperative to proper sewing conditions. Improper relationship of the needles to the stitch tongue often results in malformed stitches. When replacing the stitch tongue make sure needles are aligned properly (see Fig. 4).

If the stitch tongue and throat plate are properly seated and the needle position is not correct, the cylinder has probably been forced out of position. If realignment is necessary, refer to the section "Aligning the Cylinder".

When the needles are correctly positioned in the throat plate the space to the left of the needles in the stitch tongue slot is .006" (0.15mm) more than the space to the right (see Fig. 4). Actually, the needle bar is centered to the throat plate and cylinder, however, to provide clearance on the left side of the needle for the needle loops passing around the looper during the down stroke of the needles, the slots in the stitch tongue are made off-center to the left. Accurate positioning of the needles may be obtained by repositioning the cylinder.

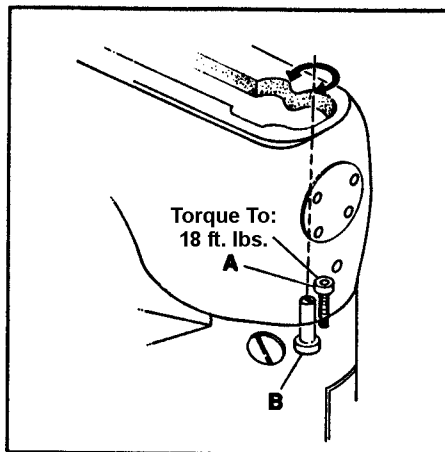


FIG. 5

ALIGNING THE CYLINDER

Remove the top front cover and gasket from the main frame. Loosen cylinder holding screw (A, Fig. 5). Turn eccentric screw (B) clockwise to move the cylinder so the needles are closer to the right side of the stitch tongue. Turn the stud counterclockwise to locate the needles closer to the left. Tighten screw (A) and recheck settings.

NOTE: The cylinder may not move freely when the eccentric is turned because the joint sealant compound has set. Light tapping with a wooden block at the joint or midpoint of the arm may be necessary.

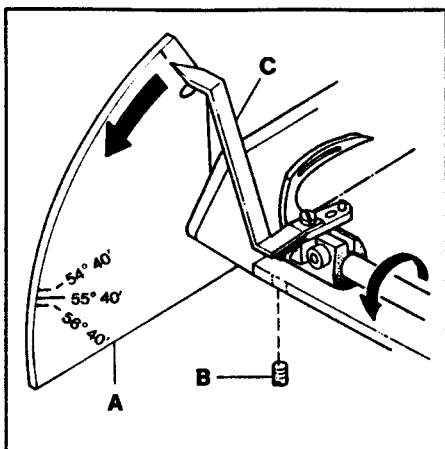


FIG. 6

SETTING THE LOOPER TRAVEL USING GAUGE 21227CN

Attach looper travel gauge plate (A, Fig. 6) to the rear of the cylinder arm. Set the bottom of the gauge so it is approximately horizontal and lock lightly in place with screw (B) directly underneath. Attach looper travel gauge pointer (C) to the looper using the left needle guard screw hole. Turn the handwheel in operating direction until the looper is positioned to the far right. Set pointer (C) at zero degrees by rotating gauge plate (A) and lock in place. Continue turning the handwheel until the pointer stops. If the looper travel is correct the pointer should indicate 55° 40'.

SETTING THE LOOPER TRAVEL

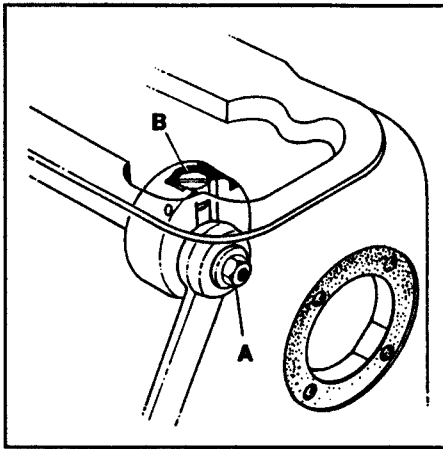


FIG. 7

To adjust the looper travel remove the top front cover and the end cover. Loosen left-handed locknut (A, Fig. 7) and turn screw (B) clockwise to decrease the looper travel or counterclockwise to increase the looper travel. Tighten locknut (A) and recheck setting.

NOTE: After setting the looper travel the machine must be checked for synchronization.

TIMING THE NEEDLES TO THE LOOPER

To visually check the timing of the needles to the looper, turn the handwheel in operating direction until the needle bar has reached its lowest position and has risen $5/32"$ (4.0mm). At this time the looper point should appear at the same relative position to the needles whether rotation of handwheel is clockwise or counterclockwise.

INSTRUCTIONS FOR USING SYNCHRONIZING GAUGE 21227CG

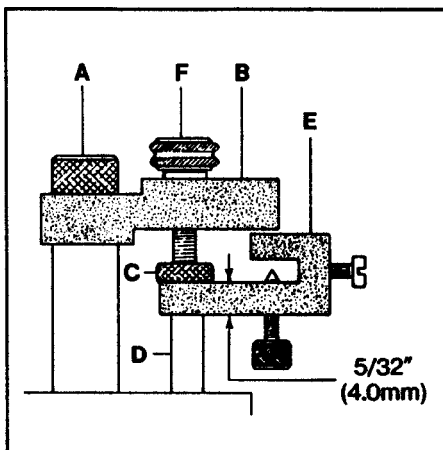


FIG. 8

Turn the handwheel until the needle bar is at its lowest point. Loosen presser bar regulating screw (A, Fig. 8) and insert needle bar setting block (B) under the head of the screw (A) with stop screw (C) above needle bar (D). Tighten screw (A).

The long portion of the looper clamp and height gauge (E, Fig. 8) laid on its side is the $5/32"$ (4.0mm) gauge used to set the distance between stop screw (C) and the top of the needle bar (D) at its lowest position. Tighten nut (F) to clamp stop screw (C) into place.

NOTE: If needle height has already been set attach gauge 21227FD (G, Fig. 8A) to the top of the needle bar to obtain the $5/32"$ (4.0 mm) setting.

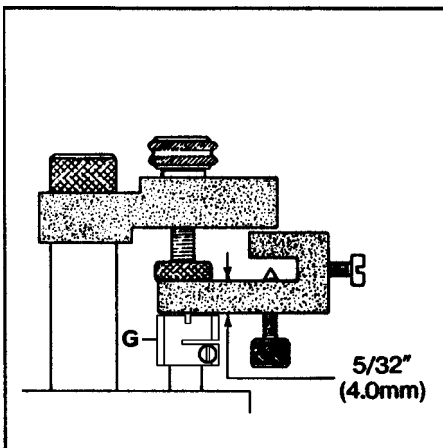


FIG. 8A

TIMING THE NEEDLES TO THE LOOPER (CONT.)

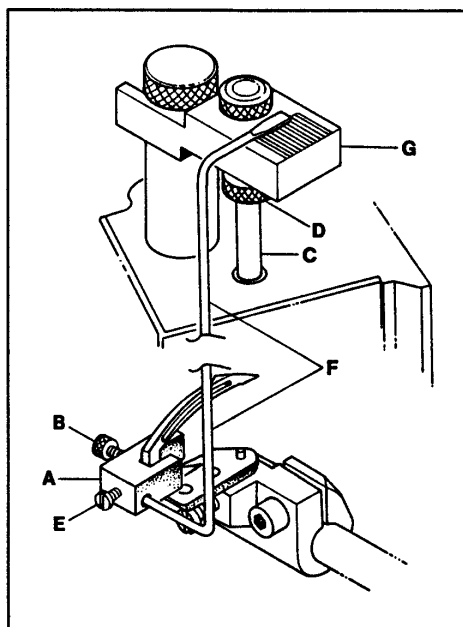


FIG. 9

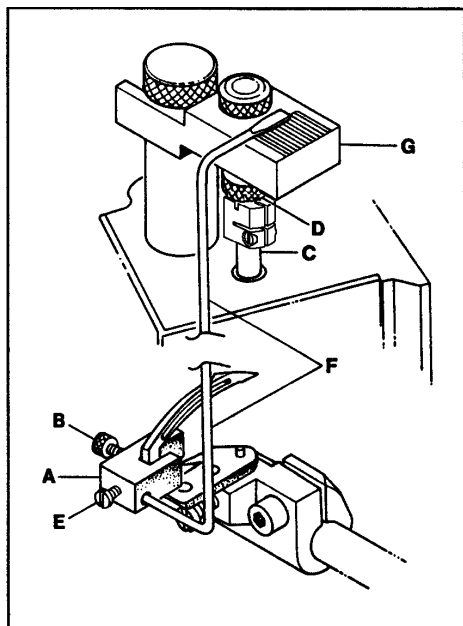


FIG. 9A

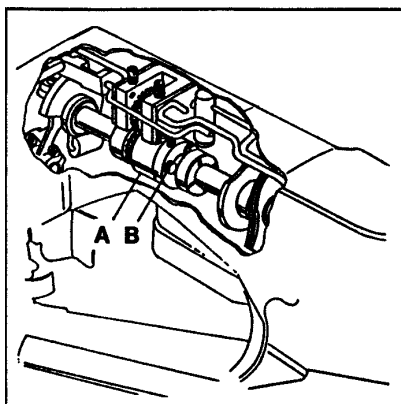


FIG. 10

Attach the looper clamp and height gauge (A, Fig. 9) to the heel of the looper by tightening screw (B). Turn the handwheel slowly in a clockwise direction until needle bar (C) touches stop screw (D). Loosen screw (E) and set synchronizing gauge rod (F) so the flat end is on one of the lines in the center of the block (G). Tighten screw (E).

Turn the handwheel in the opposite direction until the needle bar (C, Fig. 9) or gauge block (Fig. 9A) touches stop screw (D, Fig. 9). Synchronizing rod (F) should come to the same line on block (G). The difference must not exceed one line.

If the setting cannot be achieved, main shaft coupling (A, Fig. 10) must be repositioned. Remove the crank chamber cover and gasket. Loosen the three coupling screws (B). If synchronizing rod (F, Fig. 9) moves more to the right while the handwheel is rotated in a clockwise direction, the looper is too fast and the main shaft should be retarded. If the rod moves more to the right when the handwheel is rotated in a counterclockwise direction the looper is too slow and the mainshaft should be advanced. Tighten screws (B, Fig. 10).

NOTE: If the stationary Knife interferes with the synchronizing rod (F) remove the knife to make the adjustment.

LOOPER ADJUSTMENTS

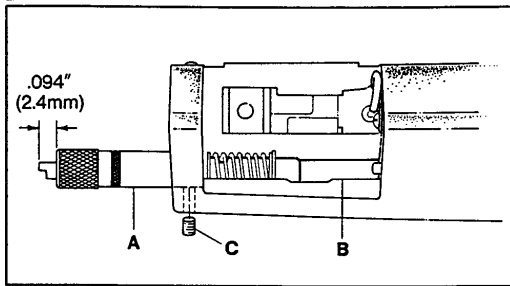


FIG. 11

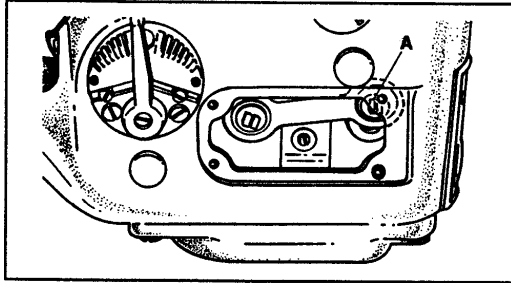


FIG. 12

Looper Avoid

The looper avoid is set at .094" (2.4mm). Using gauge no. 21227BV (A, Fig. 11), position looper shaft (B) fully to the rear (away from operator) and insert the gauge through the looper shaft hole in the end of the cylinder until the plunger is fully extended from the gauge. Tighten clamp screw (C). When the looper is positioned fully to the front, the end of the plunger should be flush with the end of the gauge. The motion of the plunger from the extended position to flush represents .094" (2.4mm) travel. To adjust the looper avoid remove the cylinder cover and loosen screw (A, Fig. 12) with TT-85 wrench. Raise the ball joint to shorten the avoid motion or lower it to lengthen the avoid motion. Tighten screw (A). Reposition gauge (A, Fig. 11) and recheck the setting.

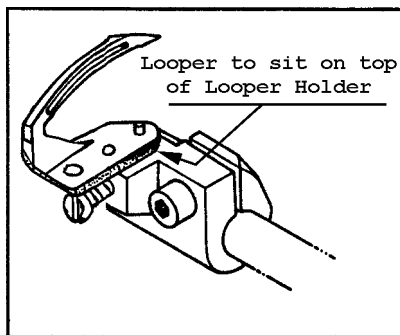


FIG. 13

Vertical Adjustment of Looper

Looper to sit on top of looper holder.

LOOPER ADJUSTMENTS (CONT.)

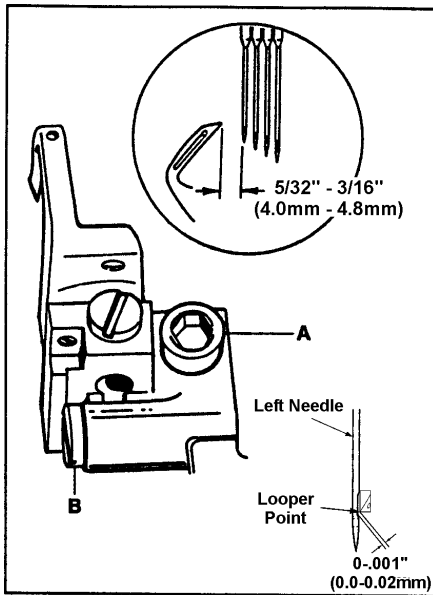


FIG. 15

Looper Gauge

Turn the handwheel in operating direction until the looper has traveled fully to the left. Loosen screw (A, Fig. 15) and move the looper holder to the right or left until the distance from the point of the looper to the center of the first (left) needle is $5/32'' - 3/16''$ (4.0mm - 4.8mm). Set looper point .000-.001" (0.0-0.02mm) to first needle. Turn screw (B) until the proper dimension is achieved. Tighten screw (A). Looper point should not deflect or pinch needles.

NOTE: Looper gauge may need to be increased or decreased slightly to obtain a proper stitch.

SETTING THE FRONT NEEDLE GUARD

Install needle guard (A, Fig. 16) with looper point at the middle of the first needle set guard to touch but not deflect or pinch .000-.001" (0.0-0.02mm) the first needle. Slowly turn the handwheel in operating direction and check the needles to make sure they are not pinched between the looper and the needle guard.

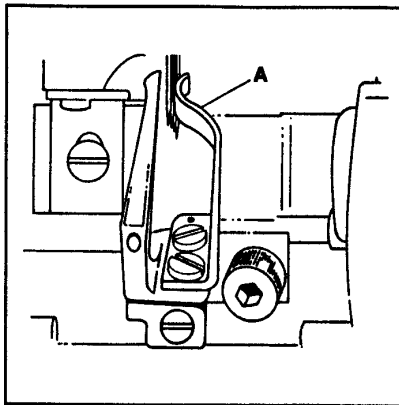


FIG. 16

SETTING THE FEED DOGS

Preliminary Setting:

Install the differential feed dog (A, Fig. 17) with screw (B). Attach rear needle guard (C) to main feed dog (D), pushing in fully to the rear and tighten screw (E). Install main feed dog with screw (F).

As a starting point loosen screw (G) and set the slot in feed bar eccentric stud (H) in a horizontal position. Tighten screw (G). At the highest point of travel feed dogs (A and D) should be the depth of one full tooth above throat plate (J). Loosen screws (B and F) and adjust the height of each feed dog by moving them up or down in the elongated slot of the shank. Tighten screws (B and F). Loosen screw (G) and turn stud (H) until the top of the feed dogs are parallel to the throat plate. Rotating stud (H) will simultaneously level both feed dogs.

NOTE: When setting eccentric stud (H) if turned clockwise feed dogs should go up if turned counter-clockwise feed dogs should go down.

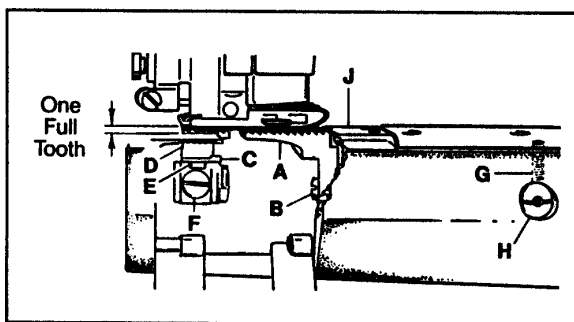


FIG. 17

Final Setting:

Both the main and differential feed dogs may be individually adjusted to height. Main feed dog (D) at its highest position should rise above the top of the throat plate the depth of one full tooth when the normal presser spring pressure is applied. The differential feed (A) may then be raised to it.

SETTING THE REAR NEEDLE GUARD

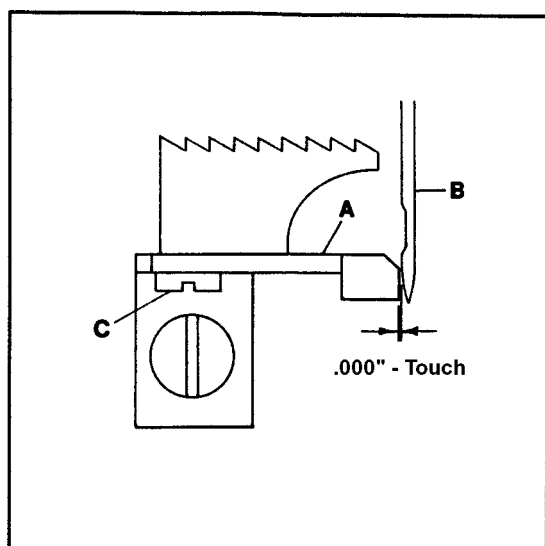


FIG. 18

Set rear needle guard (A, Fig. 18) so it touches the first (left) needle (B) but does not deflect. Check the guard position to the other needles to avoid pinching. Loosen screw (C) and reposition guard (A) as necessary. Tighten screw (C).

SETTING THE STITCH LENGTH

This machine is designed to sew 10 to 16 stitches per inch. The normal factory setting is 12 stitches per inch. To change the stitch length remove the plug screw located directly above the cylinder side cover. Loosen screw (A, Fig. 19) in lever (B) and move up to increase the stitch length or down to decrease the stitch length. Tighten screw (A) and replace the plug screw.

CAUTION: If the stitch length is changed the rear needle guard setting must be checked and readjusted if necessary. Failure to do so may result in needle and/or parts breakage.

CAUTION: When making stitch length adjustment do not exceed maximum recommended stitch length due to possible part damage.

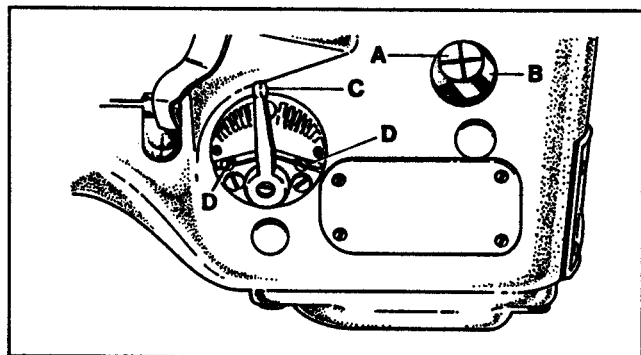


FIG. 19

DIFFERENTIAL FEED CONTROL

The amount of differential feed is controlled by lever (C, Fig. 19). The adjusting plate is numbered from 1 to 9. When the lever is set from numbers 1 to 4 reverse differential or stretching occurs. The numbers from 4 to 5 produce equal feed stitching while numbers 5 to 9 produce a gathering stitch. The two stop screws (D) can be set to limit the movement of lever (C) or lock the lever in one position.

SETTING THE PRESSER FOOT

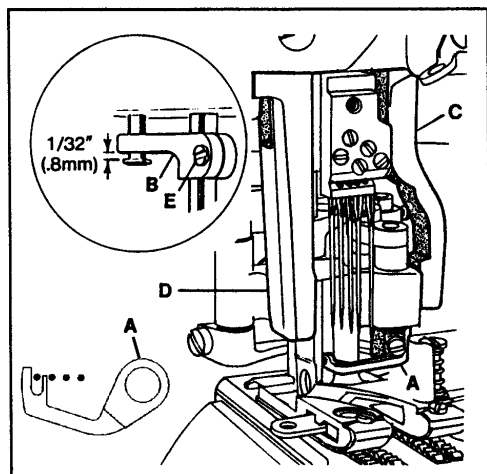


FIG. 20

Remove the presser bar regulating screw and the presser spring. Raise the needle bar to its highest position and remove the retainer. As the foot is slipped under the needles, swing the upper knife into the opening on the right side of the foot and slide the linkage onto the hook driving sleeve. Insert the presser bar through the linkage and into the presser foot shank. Tighten presser foot screw. With the presser bar inserted properly into the presser foot, position the foot left to right so the finger of cover thread carrier (A, Fig. 20) is between the first and second needles. Set presser bar guide (B, Fig. 20 Inset) so foot will not move. Set right presser foot guide (C) and left presser foot guide (D) to maintain setting. Loosen presser bar guide screw (E Fig. 20 Inset) and check to see that foot has vertical freedom with no right to left play, no bind. Put the needle bar in its lowest position, and set $1/32"$ (.8mm) above head of presser bar guide stud. Tighten presser bar guide screw (E).

SETTING THE PRESSER FOOT (CONT.)

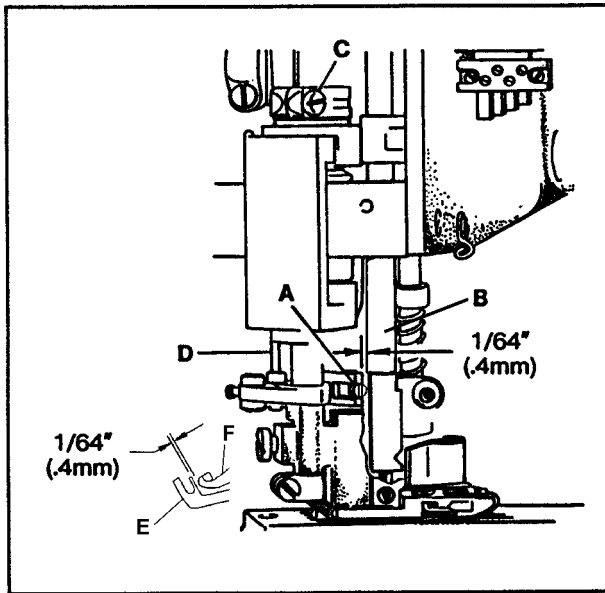


FIG. 21

Turn the handwheel in operating direction until link (A, Fig. 20) has traveled fully to the front. There must be a 1/64" (0.4mm) clearance between link (A) and the back of needle bar (B) when link (A) starts to jackknife. Loosen screw (C) and rotate driving sleeve (D) to position link (A). Tighten screw (C).

Add the cover thread hook (F) and cover thread carrier (E) if they are not in place. Position carrier so the thread loop will be carried behind the first two needles. There should be a maximum 1/64" (0.4mm) clearance between the hook and the carrier at their closest position.

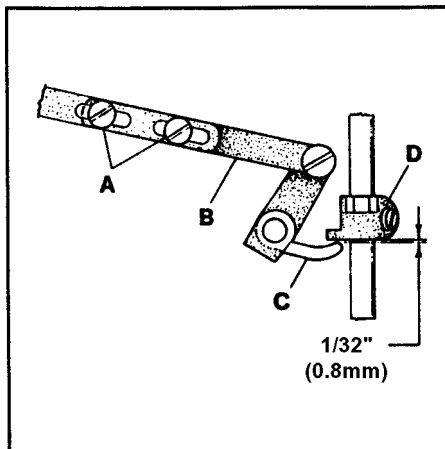


FIG. 22

Replace the presser spring and the presser bar regulating screw. Loosen screws (A, Fig. 22) in lifter lever link assembly (B) and position lever (C) so there is 1/32" (0.8mm) clearance between it and presser bar guide (D) when the feed dogs are below the throat plate.

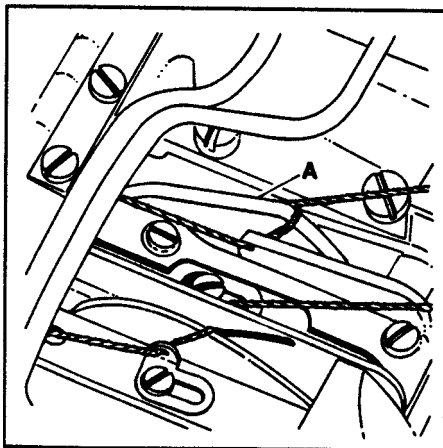


FIG. 23

When the hook swings to the left it will pass over the cover thread. On its return travel, the thread will "pop" into the slot on the underside of the hook and is carried to the right. This thread forms a triangle for the third and fourth needle threads to pass through. As the cover thread "pops" into the slot it must cast-off the high point of take-up (A, Fig. 23) at the same time. Loosen the two screws in the cover thread take-up and reposition if necessary. If there is difficulty in making this adjustment, check the thread tension and make sure the hook point has an extremely high polish and the angle is correct. Due to clearance requirements bending the hook is not recommended.

SETTING THE PRESSER FOOT (CONT.)

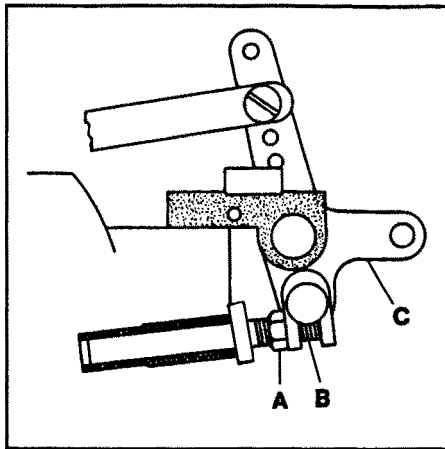


FIG. 24

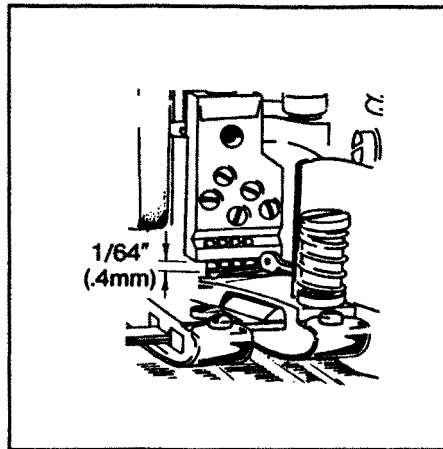


FIG. 25

The presser foot lifter stop plunger must be set so the cover thread hook will not hit the bottom of the needle head as the presser foot is being lifted. Position the needle bar to its lowest point of travel. Loosen nut (A, Fig. 24) and turn plunger (B) clockwise until it strikes the crankshaft counterweight. While applying pressure to lifter (C) to lift the foot, back out of the plunger until the distance between the hook and the underside of the needle head is $1/64"$ (0.4mm) (see Fig. 25). Tighten nut (A, Fig. 24).

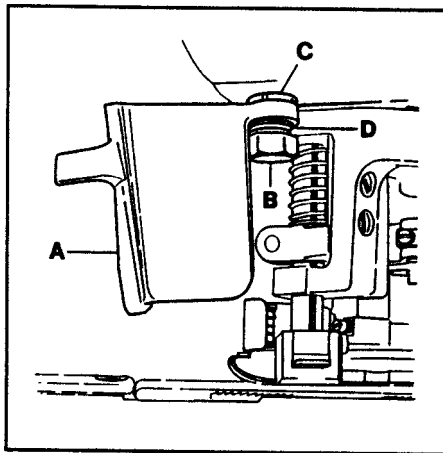


FIG. 26

To adjust the position and tension of frame chip guard (A, Fig. 26), slightly loosen screw (B) and turn washer (C) with 21388Y spanner wrench until spring (D) snaps the guard into the closed position. Tighten screw (B). A light resistance should be felt when opening the guard.

SETTING THE KNIFE DRIVE LEVER

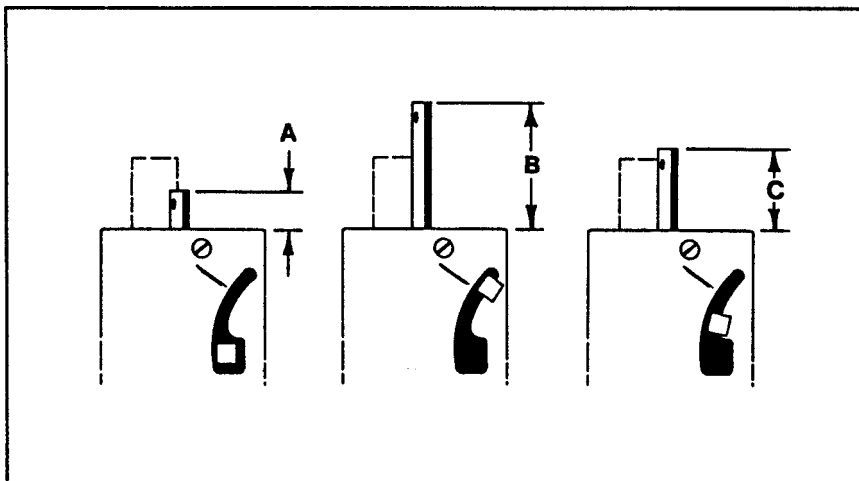


FIG. 27

Position the needle bar at the bottom of its stroke. Measure from the top of the needle bar to the top of the casting to obtain dimension "A" (see Fig. 27).

Position the needle bar at the top of its stroke. Measure from the top of the needle bar to the top of the casting to obtain dimension "B". Subtract dimension "A" from dimension "B" and divide by two. Add this number to dimension "A" to obtain "C". Set a caliper to the "C" dimension and turn the handwheel in operating direction until the height of the needle bar is at the "C" dimension.

SETTING THE KNIFE DRIVE LEVER (CONT.)

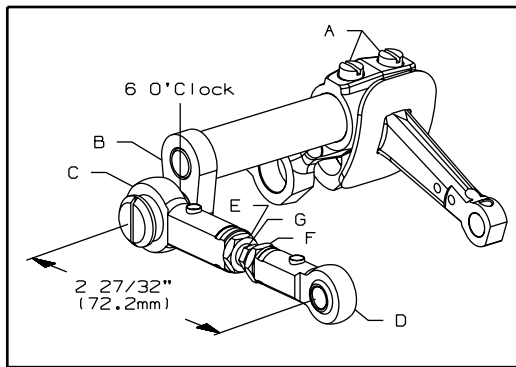


FIG. 28

At this time the knife drive lever should be in the 6 o'clock position. If adjustment is necessary, loosen screws (A, Fig. 28) in the needle lever and reposition knife drive lever (B) to the 6 o'clock position. Tighten screws (A). The dimension between the centerline of right and left knife drive connection ball joints (C and D) must be 2 27/32" (72.2mm). Loosen left hand thread nut (E), right hand thread nut (F) and turn connecting rod (G) until dimension is achieved. Tighten nuts (E and F).

SETTING THE TRIMMING KNIVES FOR FLAT SEAMING (STYLES 36200L100-52, L100-60, T300-52, T300-60, U300-52, U300-60)

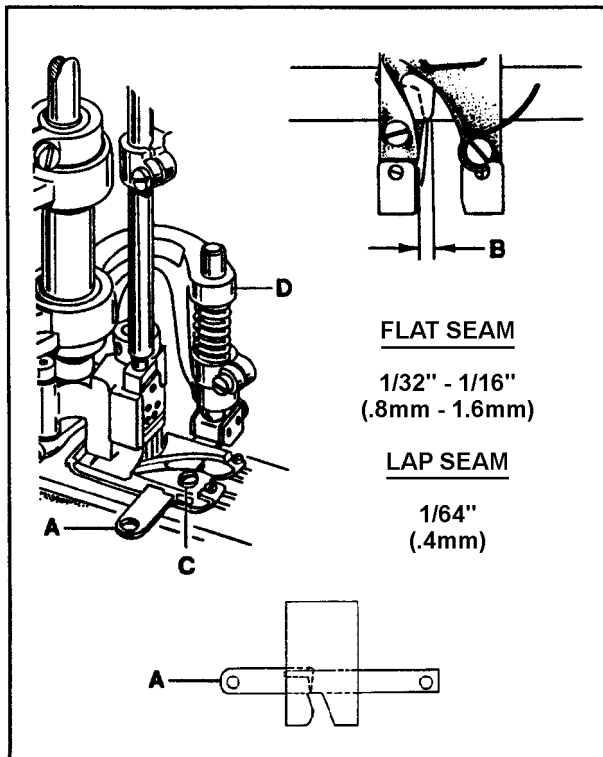


FIG. 29

To make the adjustments for a flat seam, position lower knife (A, Fig. 29) in the foot so it extends 1/32" to 1/16" (0.8mm to 1.6mm) past the right side of the left toe (B) (approximately between the second and third needles). Loosen screw (C) and move knife in or out as required. Tighten screw (C) securely.

SETTING THE TRIMMING KNIVES FOR LAP SEAMING (STYLES 36200L100-52, L100-60, L200-52, L200-60, L202-52, L202-60, L210-52, L210-60, U300-52, U300-60)

To make the adjustments for a lap seam, position lower knife (A, Fig. 29) in the foot so it extends 1/64" (0.4mm) past the right side of the left toe (B) (approximately even with the first needle). Loosen screw (C) and move knife in or out as required. Tighten screw (C) securely.

(ALL STYLES)

Turn handwheel in operating direction until knife driving bracket (D) is positioned to the extreme left. At this time the front edge of both knives should be parallel with each other and the upper knife cutting edge should overlap lower knife cutting edge by 1/64" (0.4mm)

SETTING THE TRIMMING KNIVES (ALL STYLES) (CONT.)

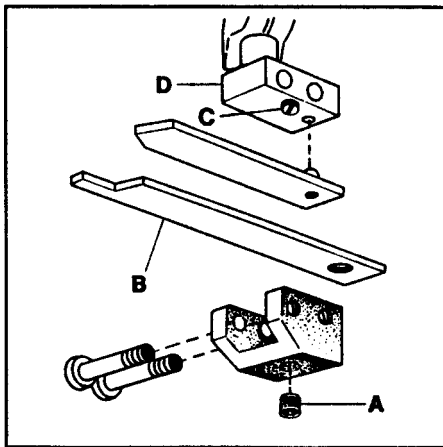


FIG. 30

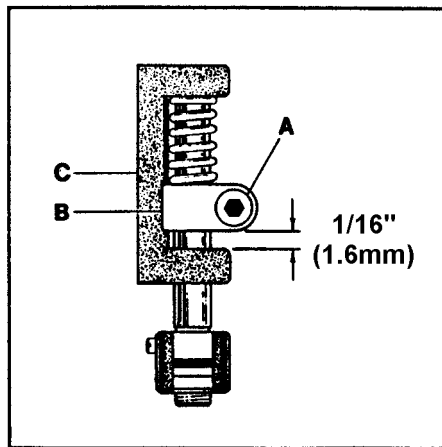


FIG. 31

If necessary loosen screw (A, Fig. 30) and move knife (B) to the right or left as required. Tighten screw (A).

If the shear angle between the knives has to be changed, raise or lower screw (C, Fig. 30) in knife holder shank (D).

To set spring pressure between the knives loosen screw (A, Fig. 31) and raise knife holder guide collar (B) 1/16" (1.6mm) from knife driving bracket (C). Tighten screw (A).

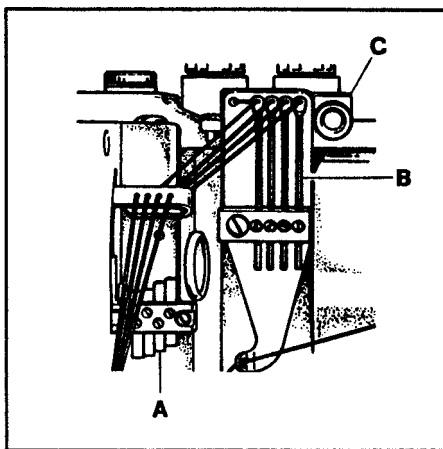


FIG. 32

NOTE:

More or less spring pressure may be required depending on the type of material being sewn. Also, both knives may have to be repositioned after a trial seam is made so there is an equal margin from the edges of the two plies to the center rows of stitching.

NEEDLE THREAD ADJUSTMENTS

Four needle thread strike-off pins (A, Fig. 32) are provided for independent needle thread control. Level the take-ups to the height of the thread in the needle lever eyelet at its lowest position. Raise the first take-up (nearest the operator) 1/8" (3.2mm) and the second take-up 1/16" (1.6mm). Further adjustment may be necessary to obtain proper needle loop size so skipped stitches may be avoided.

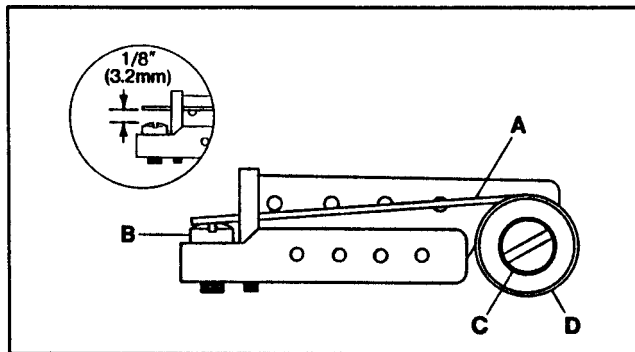


FIG. 33

Set the four frame needle thread eyelets (B, Fig. 32) eye with the eyelets in holder (C). Adjust as necessary so the needle thread loops around the looper will remain firm and not seek random positions when the needle bar descends.

Unlocking spring (A, Fig. 33) provides a proportional amount of pull-up of the needle threads when the machine is reversed for unlocking the stitch so the loops will not form on the front of the needles and become caught by the looper.

NOTE: Unlocking spring is only used when starting and stopping on the material.

Turn screw (B) up or down so unlocking spring (A) will have 1/8" (3.2mm) drop from the bottom of the thread holes to the top of screw (B). Loosen screw (C) and turn knurled knob (D) to adjust the spring tension. Tighten screw (C).

Tension of the six threads is individually controlled. The needle tension is seldom uniform; the first needle thread having more tension than the other three. Use only enough tension to pull up the stitch. A well-balanced stitch will have the first and fourth needle loops pulled up and the second and third needle loops small and even.

LOOPER THREAD ADJUSTMENT

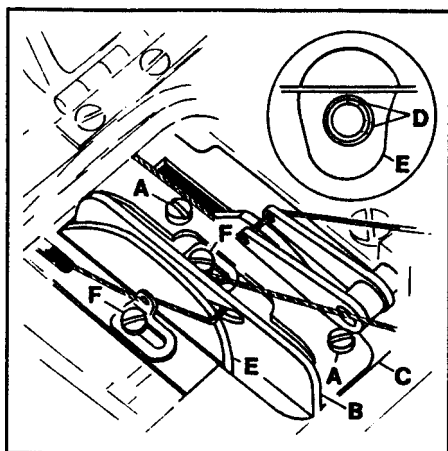


FIG. 34

Loosen screws (A, Fig. 34) and position looper thread cast-off (B) flush with the right end of cast-off support plate (C). Tighten screws (A). Loosen screws (D, Fig. 34 inset) and time take-up (E) so the thread will cast-off when the needle bar has descended $7/64$ " (2.8mm) from its highest position. When thread eyelets (F) are moved further to the left the amount of thread pull-off will increase.

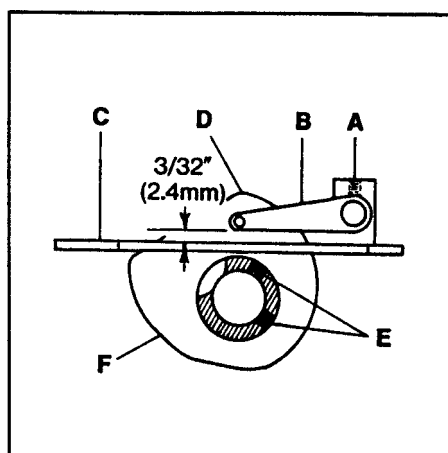


FIG. 35

COVER THREAD ADJUSTMENT

Loosen screw (A, Fig. 35) and set the lower edge of cover thread take-up eyelet (B) so its $3/32$ " (2.4mm) above the surface of cast-off plate (C). Tighten screw (A). As the cover thread hook moves to the left over the cover thread and the needle bar starts to rise, the cover thread must "cast-off" from the high point of take-up (D). Loosen screws (E) and adjust take-up (F) accordingly. make sure that take-up (F) is centered in cast-off plate slot (C) and take-up eyelet (B) is centered to take-up (F). Tighten screws (E).

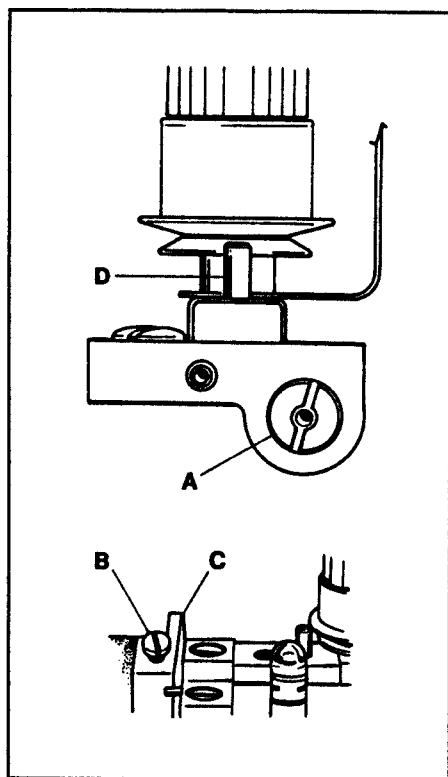


FIG. 36

TENSION RELEASE

The tension releaseshould start to function when the presser foot has raised approximately $1/32$ " (0.8mm) above the surface of the throat plate and be entirely released when the presser foot has reached its highest position. Insert a large screwdriver into slot on the right end of shaft (A, Fig. 36), loosen screw (B) in lifter lever (C) and turn the screwdriver to raise or lower pins (D). Tighten screw (B).

NOTE:

Make sure the $1/32$ " (0.8mm) clearance between the presser bar lifter lever and presser bar guide has been maintained. Refer to Fig. 22 if readjustment is necessary.

HUNG FOOT ADJUSTMENT

When sewing on extremely lightweight material and/or feed cutting is a problem, the presser foot may be "hung" by raising stud (B) until guide (A) rests on the shoulder of stud (B). This adjustment will raise the presser foot slightly, so only the pressure of the presser foot shoes contact the material. Turn handwheel in operating direction until the feed dogs are below the throat plate surface. At this time there should be a 1/32" (0.8mm) clearance between the bottom of presser bar guide (A, Fig. 37) and presser bar guide stud (B). To hang presser foot, loosen lock nut (C Fig. 37) and turn thumbscrew (D Fig. 37) so that the foot comes up slightly, tighten nut (C Fig. 37).

SETTING THE LAP FORMER

Attach gibs (A, Fig. 38) to the cylinder cover but do not tighten screws (B); leave them snug for further adjustment. Fasten spring (C, Fig. 38 inset) to the bottom of slide block (D) and insert between gibs (A). Attach lap former (E) to slide block (D) with screws (F) and position it in the center of the presser foot. Position the slide block so it has a snug (but not tight) fit the entire length of the gibs. Tighten screws (B).

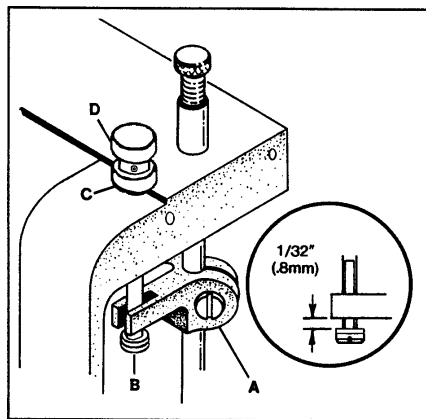


FIG. 37

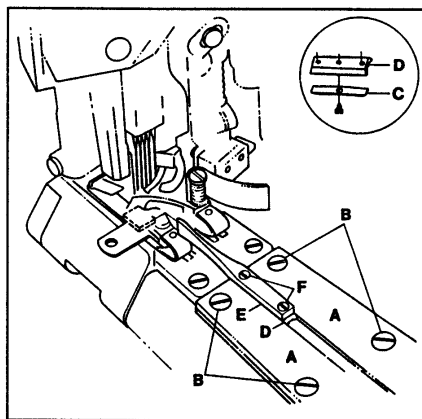


FIG. 38

LAP SEAMING

Lap Seaming can be accomplished using three methods:

1. Lap seaming cutting only right ply of material. (L100-52, L100-60, U300-52, U300-60)
 - A. Use flat seam presser foot.
 - B. Remove front right throat plate screw and attach 36203 edge guide with 22849 screw, and adjust left or right for proper coverage on bottom.
 - C. Adjust knives left or right for proper trimming and coverage on top.
2. Lap seaming cutting only left ply of material. (L100-52, L100-60, U300-52, U300-60)
 - A. Use flat seam presser foot.
 - B. Remove left front throat plate screw and attach 36203 edge guide with 22849 screw, and adjust left or right for proper coverage on bottom.
 - C. Adjust knives left or right for proper trimming and coverage on top.
3. Lap Seaming cutting two plies of material. (L200-52, L200-60, L201-60, L202-52, L202-60, L210-52, L210-60, U300-52, U300-60)
 - A. Remove flat seam presser foot and replace with lap seam presser foot. Refer to pages 15, 16, & 17 for presser foot adjustments.
 - B. Attach lap former and slide block with spring. See above for adjustments.

REPLACING PRESSER FOOT SHOES

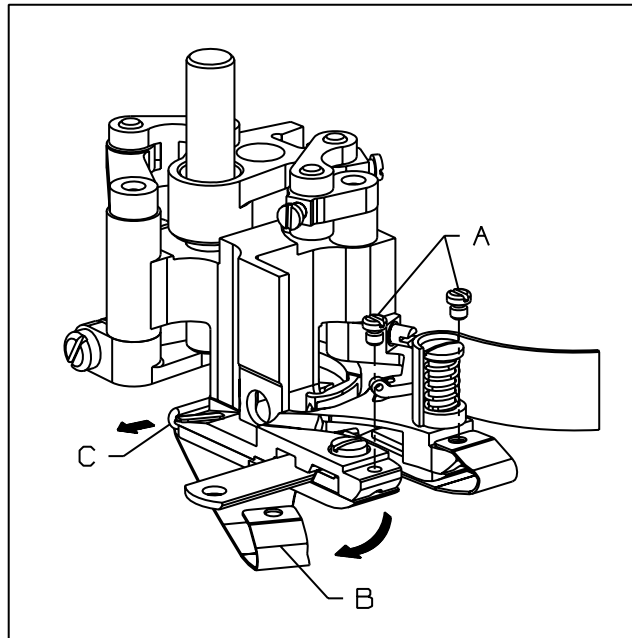


FIG. 39

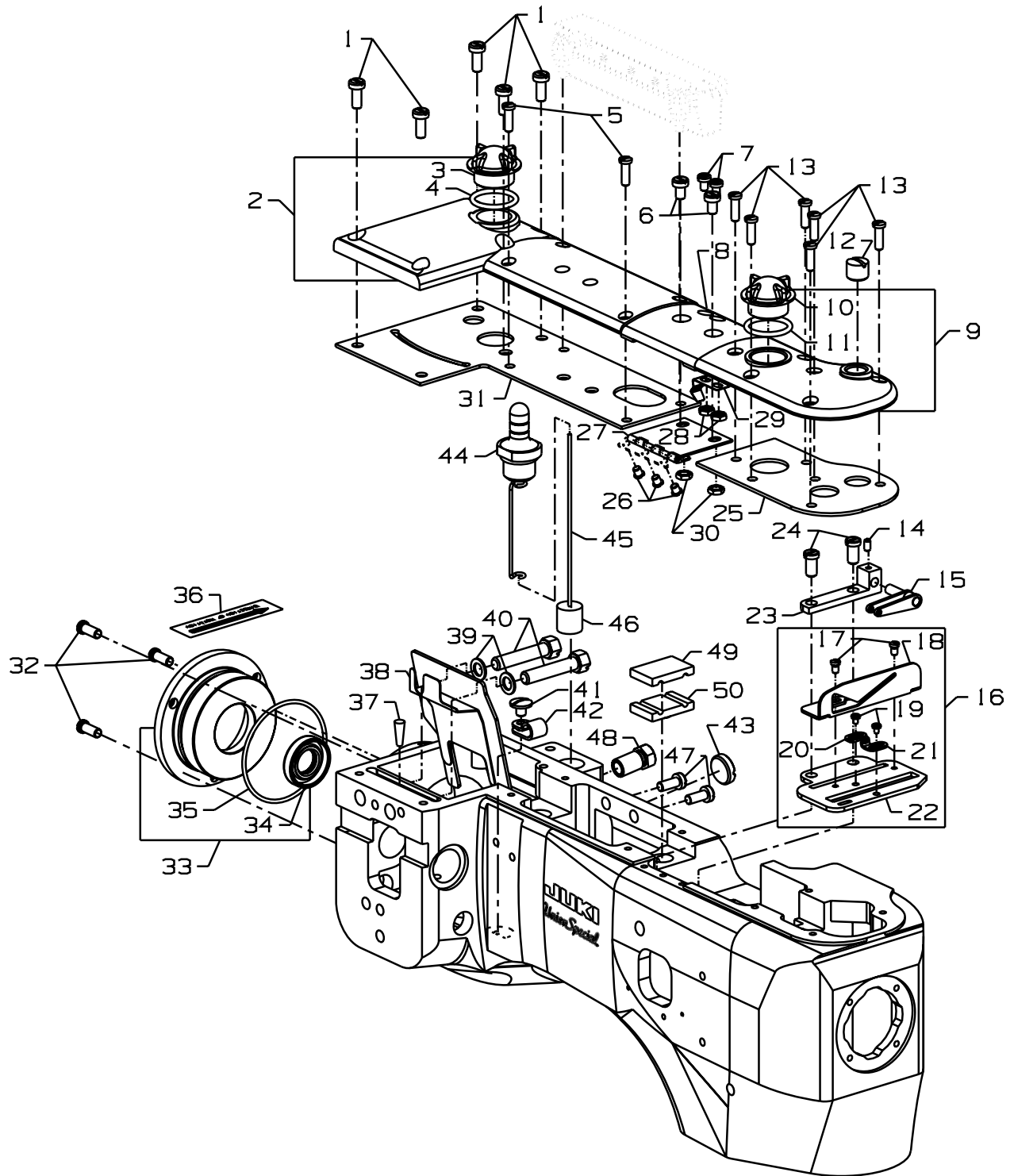
REMOVING

1. Remove screws (A, Fig. 39).
2. Remove the presser foot shoes (B, Fig. 39) from the presser foot.
3. Remove each shoe (B, Fig. 39) from the shoe holder (C, Fig. 39).

RESETTING

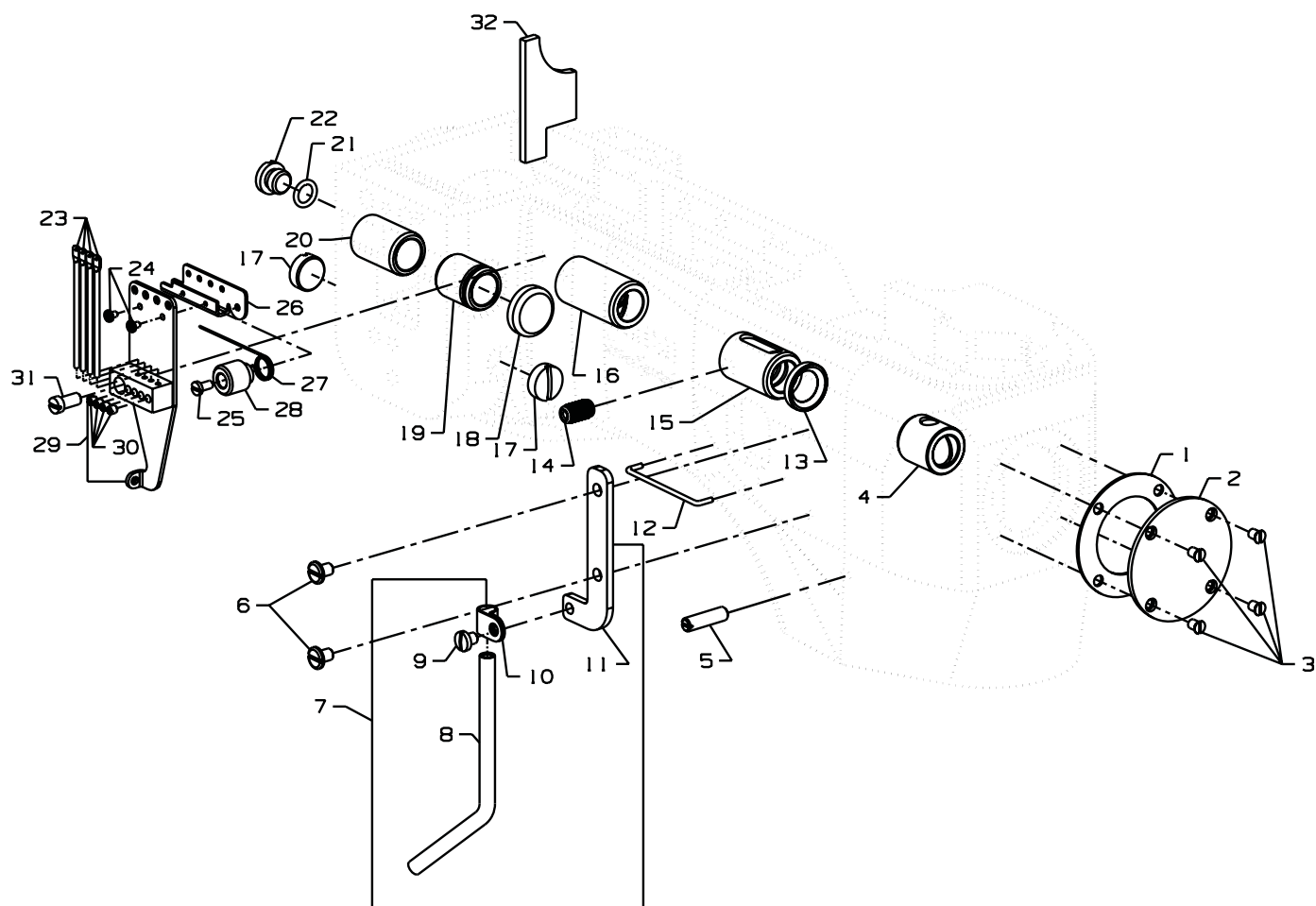
1. Reset each presser foot shoe (B, Fig. 39) with the shoe holder (C, Fig. 39).
2. Reset the shoes (B, Fig. 39) parallel to each other on the presser foot.
3. Tighten the screws (A, Fig. 39) securely.

EXPLODED VIEWS



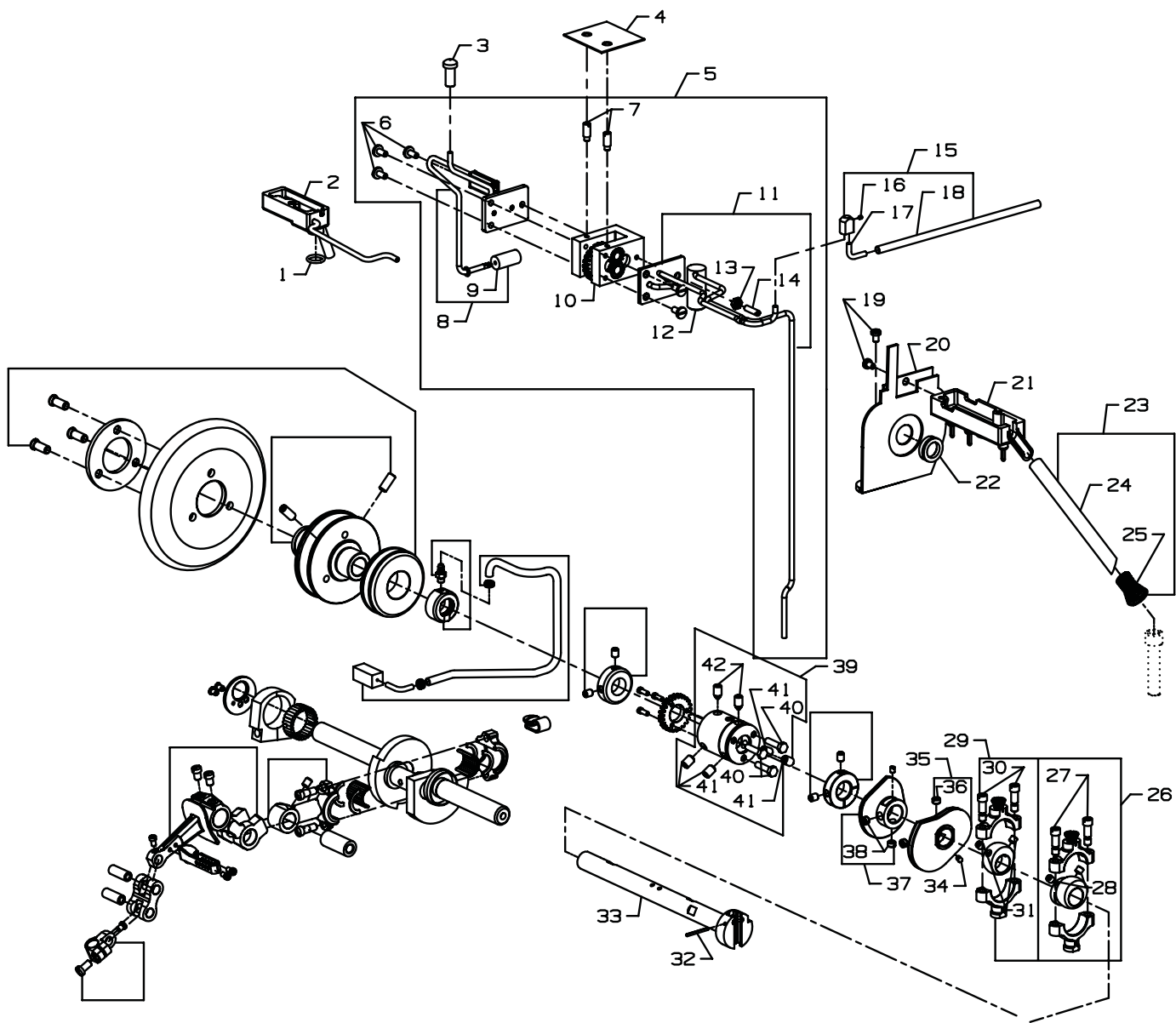
OIL SIGHT GAUGES, TOP COVERS & MISCELLANEOUS TAKEUP & EYELET PARTS

Ref. No.	Part No.	Description	Amt. Req.
1.	93	Screw, for crank chamber cover	5
2.	35888N	Crank Chamber Cover	1
3.	22924708	Oil Sight Gauge	1
4.	660-212	"O"Ring	1
5.	22516A	Screw	2
6.	93A	Screw, for middle top cover	2
7.	90	Screw, for spring	2
8.	35887X	Top Cover, middle	1
9.	35887AE	Top Cover, front	1
10.	22924708	Oil Sight Gauge	1
11.	660-212	"O"Ring	1
12.	22539M	Plug Screw	1
13.	22516A	Screw, for front top cover	6
14.	73C	Screw	1
15.	36256	Cover Thread Take-up Eyelet	1
16.	29476XC	Cast-Off Plate Assembly	1
17.	22KH	Screw, for cast-off	2
18.	36204	Cast-off	1
19.	73A	Screw, for cast-off plate eyelets	2
20.	52958F	Cast-off Plate Eyelet, rear	1
21.	52958C	Cast-off Plate Eyelet, front	1
22.	36204A	Cast-off Plate	1
23.	36256A	Cover Thread Take-up Eyelet Holder	1
24.	22839	Screw	2
25.	36284T	Gasket, for front top cover	1
26.	22564B	Screw, for middle cover hinge	3
27.	35887R	Middle Cover Hinge	1
28.	41071G	Nut, for top middle cover spring screw	2
29.	35887M	Spring, for middle top cover	1
30.	12934A	Nut, for top middle cover spring screw	2
31.	36284M	Gasket, for crank chamber	1
32.	22569B	Screw, for bushing housing	3
33.	36290M	Crankshaft Bushing Housing Assembly	1
34.	660-1146	Lip Seal	1
35.	660-935	"O"Ring	1
36.	LA528	Directional Label	1
37.	CO67E	Cork	1
38.	36289K	Oil Shield	1
39.	6042A	Washer, for screw	2
40.	22759A	Screw, for connecting head to main frame	2
41.	22711	Screw, for hose clamp	1
42.	998-358E	Hose Clamp, for pump 36293R	1
43.	22539AA	Plug Screw	1
44.	36293B	Oil Sight Gauge	1
45.	36293E	Oil Level Indicator	1
46.	39593C	Oil Gauge Float	1
47.	93	Screw, for oil pump housing	2
48.	35890P	Bushing	1
49.	35893G	Seal, Upper	1
50.	35893H	Seal, Lower	1



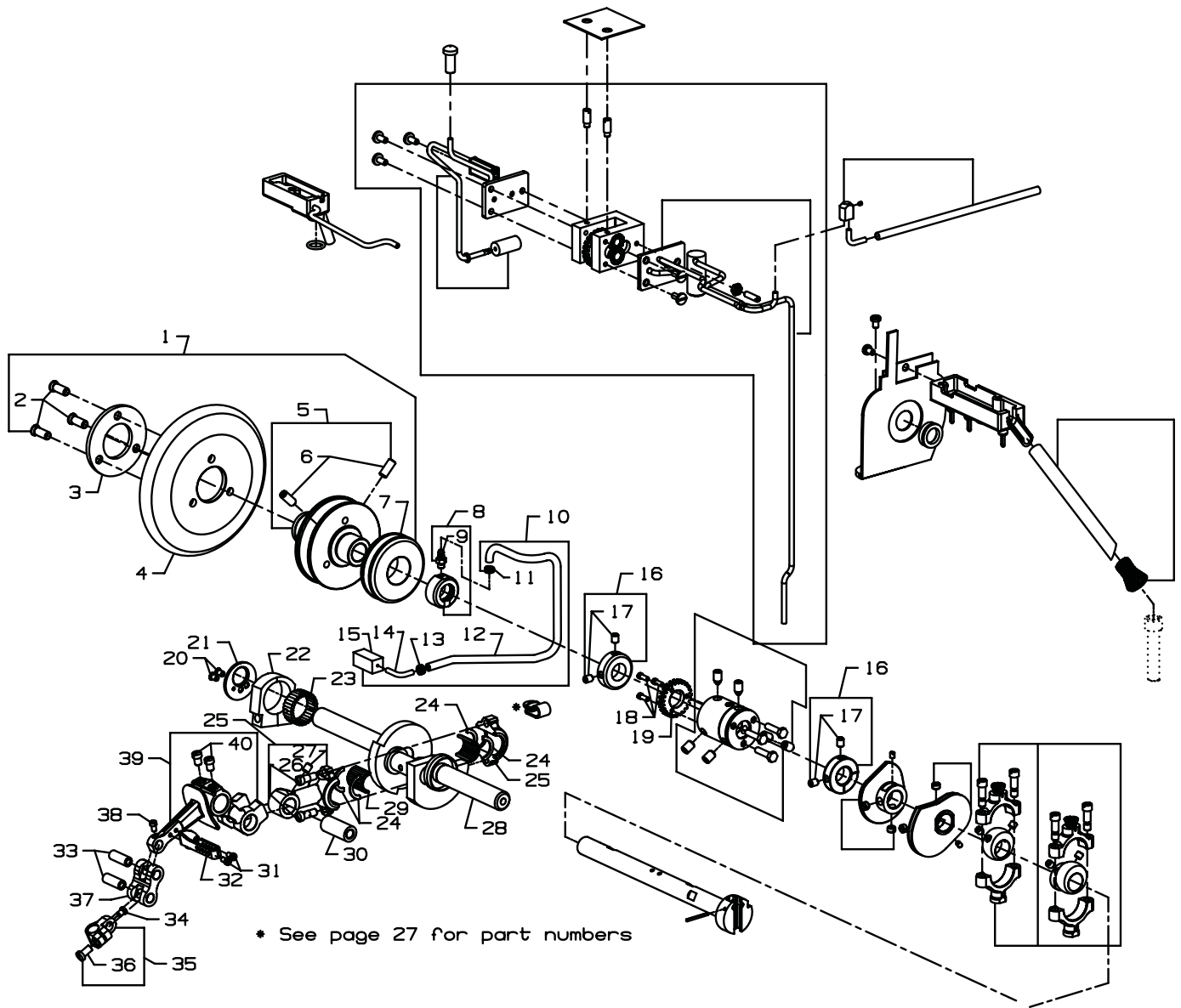
MAIN FRAME, BUSHINGS & MISCELLANEOUS EYELET & COVER PARTS

Ref. No.	Part No.	Description	Amt. Req.
1.	36284S	Gasket, end cover	1
2.	35887Z	End Cover	1
3.	22564B	Screw, end cover	4
4.	36290B	Main Shaft Bushing, front	1
5.	92201	Screw, for looper drive lever shaft	1
6.	22829	Screw, looper thread shield	2
7.	29105BH	Looper Thread Shield	1
8.	35866A	Tube	1
9.	SS7110510SP	Screw	1
10.	35866B	Tube Clamp	1
11.	35883AL	Support	1
12.	35781D	Looper Thread Guide Wire	1
13.	660-1132	Oil Seal	1
14.	62271B	Thread Guide	1
15.	36290G	Main Shaft Bushing, rear	1
16.	35890E	Crankshaft Bushing, front	1
17.	22539T	Plug Screw	2
18.	35761D	Bushing Cap	1
19.	36260B	Needle Lever Shaft Bushing, front	1
20.	36260C	Needle Lever Shaft Bushing, rear	1
21.	660-206	Rubber "O" Ring	1
22.	22733B	Oil Drain Screw	1
23.	36271A	Needle Thread Eyelet	4
24.	73A	Screw, for needle thread eyelet	2
25.	22768B	Screw, for unlocking spring height adjusting	1
26.	36271G	Stitch Unlocker Mounting Bracket	1
27.	36271E	Unlocking Spring	1
28.	36271H	Spring Holder	1
29.	36271	Frame, Needle Thread Eyelet	1
30.	28C	Screw	4
31.	22596D	Screw, for needle thread eyelet	1
32.	36293N	Felt	1



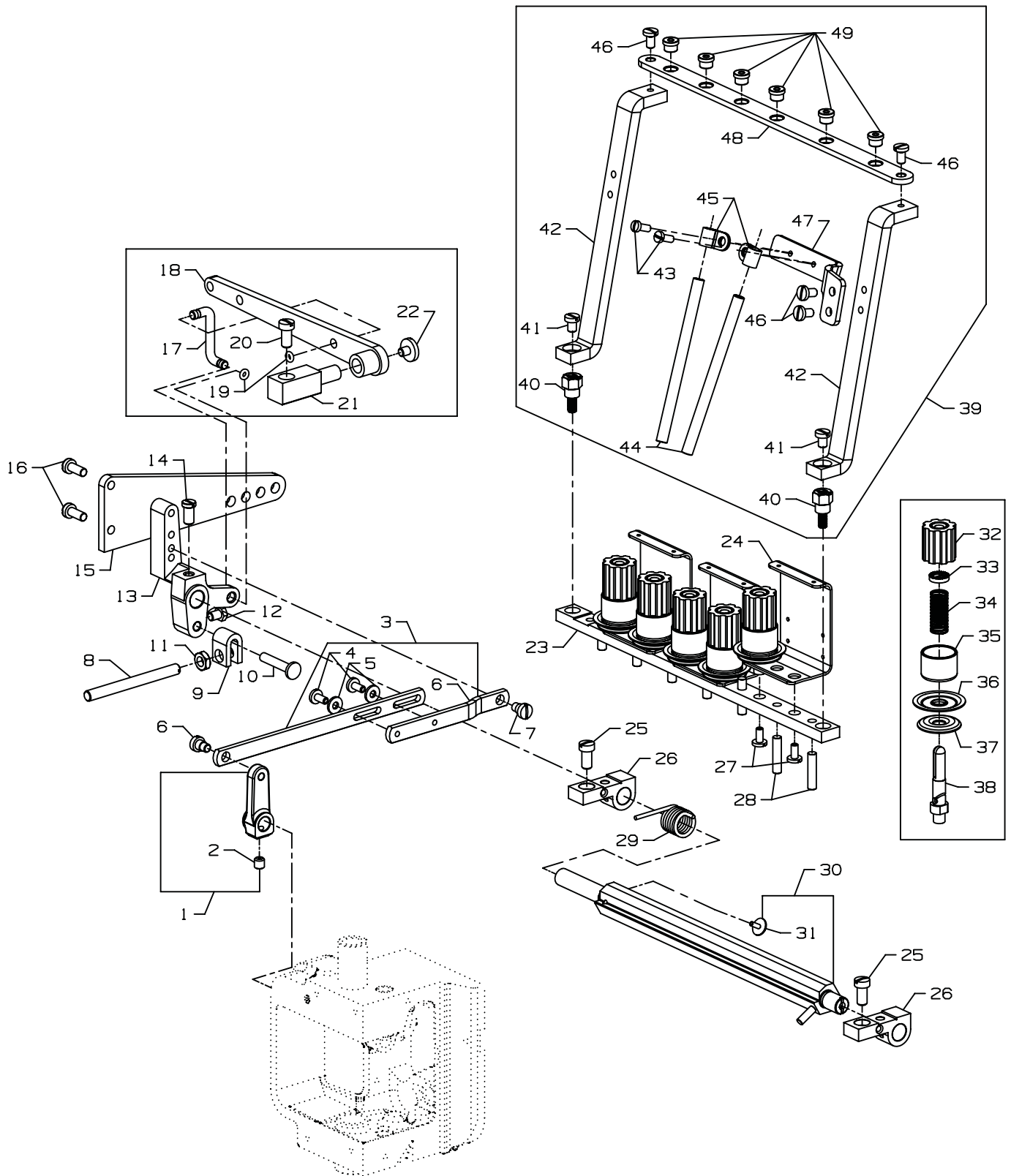
MAIN SHAFT & MISCELLANEOUS OILING

Ref. No.	Part No.	Description	Amt. Req.
1.	660-207	Oil Seal Ring	1
2.	36294G	Oil Reservoir, back	1
3.	36293T	Oil Tube Extension	1
4.	35897BW	Gasket	1
5.	29472AG	Pump Assembly	5
6.	22585A	Screw, for housing cover	2
7.	21756G	Vent Screw	1
8.	36297J	Housing Cover and Oil Tube, rear	1
9.	35897BV	Intake Filter	1
10.	29472AC	Pump Body and Gear Assembly	1
11.	36297N	Housing Cover and Oil Tube, front	1
12.	22571B	Plug Screw	1
13.	41071G	Nut	1
14.	22565A	Screw	1
15.	36293M	Oil Splitter	1
16.	1096	Screw	1
17.	36293L	Oil Tube	1
18.	50393-140	Tubing	2
19.	90	Screw, for take-up shield	1
20.	36261A	Take-up Shield Assembly	1
21.	35894L	Oil Reservoir, front	1
22.	666-338	Oil Seal Ring	1
23.	36293K	Oil Tube Bypass	1
24.	671B3	Oil Tube	1
25.	11550209	Tension Spring	1
26.	29101J	Feed Drive Eccentric Assembly	2
27.	22587E	Screw	2
28.	22894W	Set Screw	1
29.	29103T	Feed Lift Eccentric Assembly	2
30.	22587E	Screw	2
31.	22894W	Set Screw	1
32.	660-219P	Roll Pin	1
33.	36222C	Main Shaft	2
34.	22801	Screw	1
35.	36223	Double Disc Take-up	2
36.	22580	Screw	1
37.	36223A	Cover Thread Take-up	2
38.	22580	Screw	1
39.	35895W	Main Shaft Coupling	3
40.	22519F	Screw	4
41.	22894J	Set Screw	2
42.	22894K	Spot Screw	



CRANKSHAFT & NEEDLE LEVER PARTS

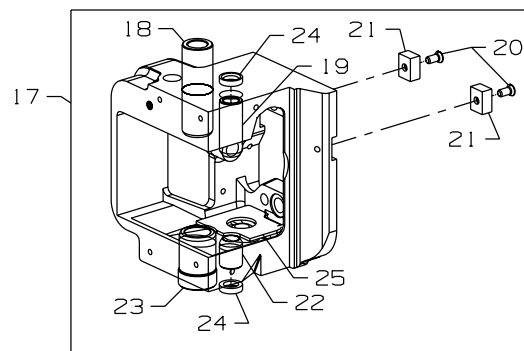
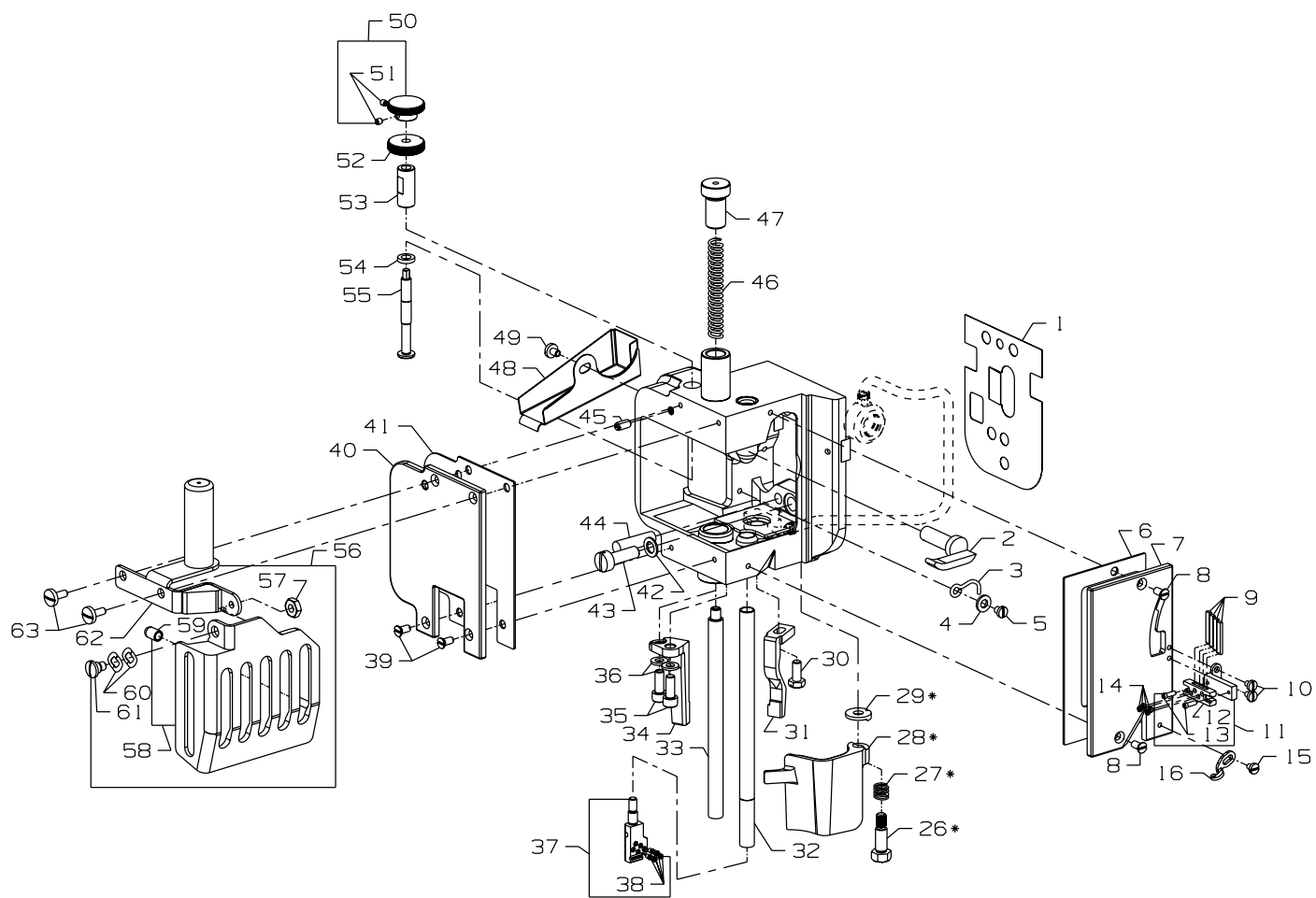
Ref. No.	Part No.	Description	Amt. Req.
1.	36221N	Pulley Assembly	1
2.	22574	Screw	3
3.	61321L	Clamp Plate	1
4.	61321J	Handwheel	1
5.	36221P	Pulley	1
6.	22894E	Screw, for pulley	2
7.	50311C	Ball Bearing	1
8.	36293Q	Bushing Pump	1
9.	SQ1110401MZ	Barb Fitting	1
10.	36293R	Pump Assembly	1
11.	50393KM	Tube retainer spring	1
12.	50393-260	Tubing	1
13.	50393CS	Tube retainer spring	1
14.	36293S	Oil Tube	1
15.	666-214	Oil Intake Felt	1
16.	35895Y	Crankshaft Thrust Collar	2
17.	22894AM	Screw	4
18.	22797	Screw	3
19.	35897BY	Pump Driving Gear	1
20.	22766	Screw	2
21.	36251N	Needle Bearing Retaining Plate	1
22.	36251M	Eccentric Bearing	1
23.	36263	Needle Bearing Rollers	28
24.	35763G	Needle Bearing Retaining Ring	4
25.	35862A	Needle Lever Connecting Rod	1
26.	22587B	Screw	2
27.	22894W	Screw	1
28.	36222A	Crankshaft	1
29.	35763F	Needle Bearing Rollers	28
30.	36247	Needle Lever Connecting Rod Pin	1
31.	77	Screw	2
32.	36264D	Needle Lever Thread Eyelet	1
33.	36254B	Link Pin	2
34.	22564	Screw	1
35.	35816	Needle Bar Connection	1
36.	SS7110910TP	Screw	1
37.	36254A	Needle Bar Link	1
38.	77	Screw	1
39.	36215	Needle Lever	1
40.	22596B	Screw	2



TENSION PARTS

Ref. No.	Part No.	Description	Amt. Req.
1.	36233	Lift Lever Link Connection	1
2.	22894J	Screw	1
3.	36280V	Lifter Lever Link Assembly	1
4.	22585A	Screw	2
5.	53678N	Washer	2
6.	36280U	Lifter Lever Link	1
7.	86	Screw	2
8.	36280A	Presser Foot Lifter Stop Plunger	1
9.	36280C	Stop Plunger Segment	1
10.	36280D	Stop Plunger Segment Pin	1
11.	258A	Nut	1
12.	22519	Screw, for stop plunger segment pin	1
13.	36280W	Presser Bar Lifter Lever	1
14.	22839D	Screw	1
15.	36280X	Lever	1
16.	93	Screw	2
*17.	36280T	Lifter Lever Connecting Link	1
*18.	36280S	Presser Foot Connection Lifter Lever	1
*19.	660-254C	Retaining Ring	2
*20.	22517	Screw, for presser foot lifter bearing bracket	1
*21.	36280N	Presser Foot Lifter Bearing Bracket	1
*22.	255	Screw	1
23.	36298H	Tension Support	1
24.	36298G	Tension Thread Eyelet	3
25.	22517	Screw, for tension plate bracket	2
26.	36292M	Tension Plate Bracket	2
27.	22585A	Screw, for tension post	6
28.	35792T	Tension Disc Release Pin	7
29.	36292K	Spring, for tension release shaft	1
30.	36292N	Tension Release Shaft	1
31.	22784F	Screw	1
32.	C50092S	Tension Nut	6
33.	39592AK	Tension Spring Ferrule	6
34.	51292F-2	Tension Spring, for cover thread	1
-	51292F-4	Tension Spring, for looper thread	1
-	51292F-5	Tension Spring, for needle thread	4
35.	W56392F	Shield, for tension spring	6
36.	35792	Tension Disc, large	6
37.	109	Tension Disc, small	6
38.	36292Q	Tension Post	6
39.	36266A	Thread Guide Assembly	1
40.	22894BK	Screw Post	1
41.	94	Screw	2
42.	36283R	Mounting Bracket	2
43.	SS7090910TP	Screw	2
44.	36266	Eyelet Tube	2
45.	35866B	Eyelet Tube Holder	2
46.	SS7110840SP	Screw	4
47.	36283T	Bracket, Tube	1
48.	36283S	Eyelet Plate	1
49.	22931208	Eyelet	6
*50.	421D38	Chain, (not shown)	1
*51.	660-264	"S" Hook, (not shown)	2

* These parts are extra send and charge Items
And may be purchased as kit 29480BER

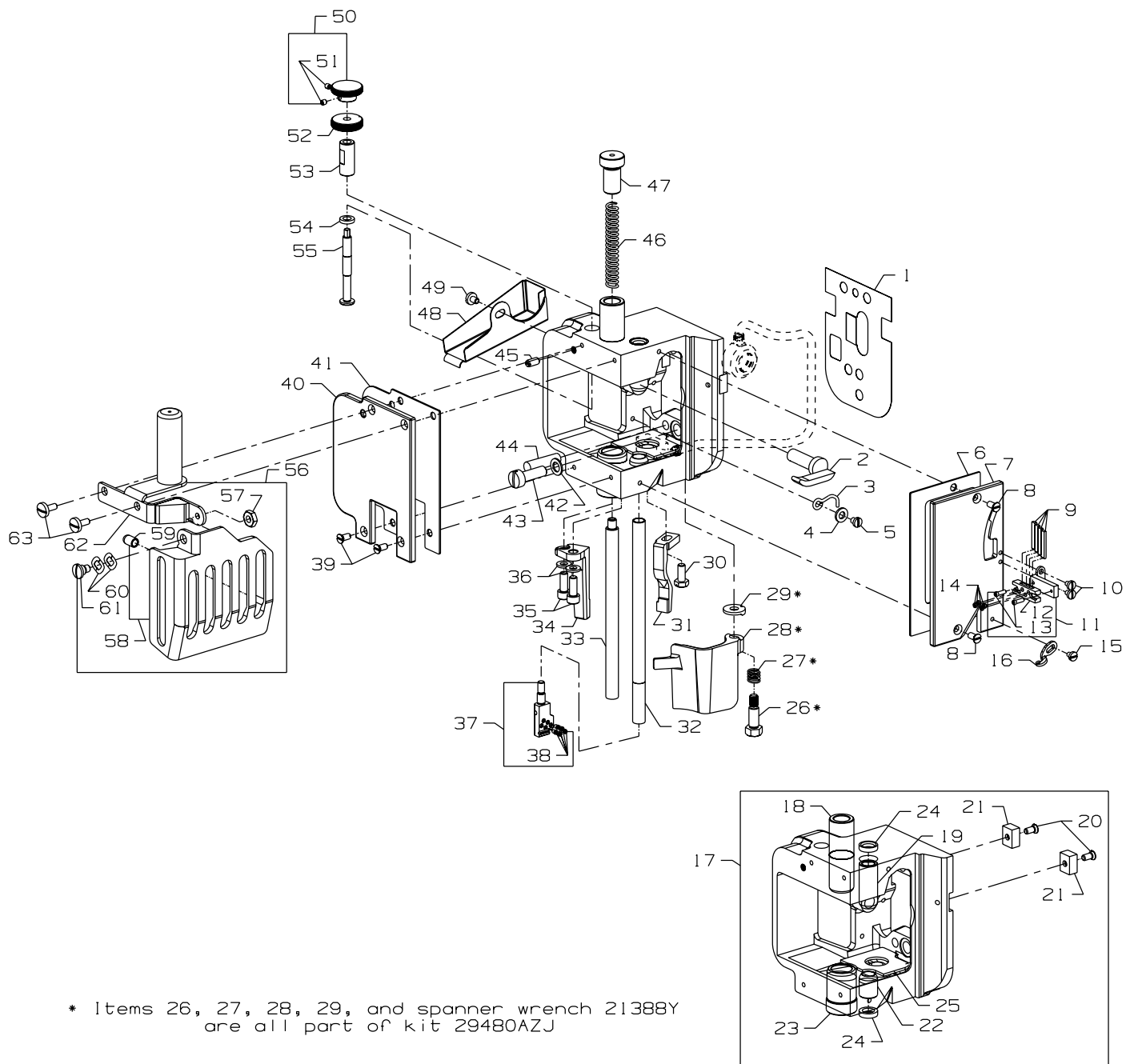


* Items 26, 27, 28, 29, and spanner wrench 21388Y
are all part of kit 29480AZJ

DETACHABLE HEAD, HEAD COVERS, NEEDLE BAR & NEEDLE BAR HEAD

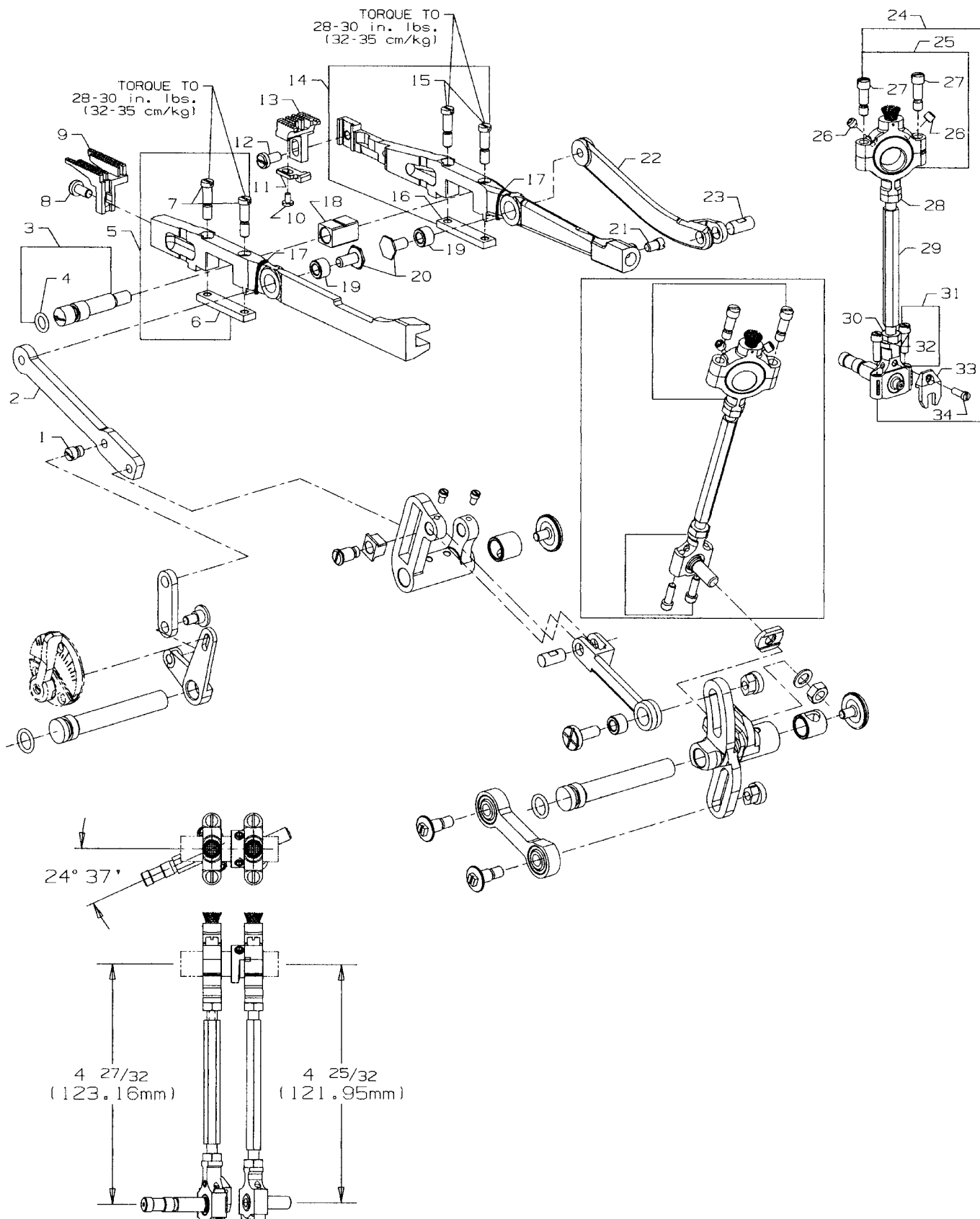
Ref. No.	Part No.	Description	Amt. Req.
1.	36289B	Baffle Plate	1
2.	36280J	Presser Bar Lifter Lever	1
3.	36294F	Oil Deflector Wire	1
4.	8372A	Washer	1
5.	22513	Screw	1
6.	36289H	Gasket, for front head cover	1
7.	36289	Head Cover, front	1
8.	22524	Screw, for front head cover	2
9.	36264B	Needle Thread Strike-off Pin	4
10.	28	Screw, for needle thread take-up	2
11.	36264E	Needle Thread Take-up, complete	4
12.	36264F	Strike-off Pin Holder	1
13.	22738C	Screw, for needle thread take-up	2
14.	28A	Screw, for needle thread take-up	4
15.	28	Screw, for cover thread eyelet	1
16.	51259	Cover Thread Eyelet	1
17.	36229H	Detachable Sewing Head	1
18.	36278A	Presser Bar Bushing	1
19.	36273T	Needle Bar Bushing, upper	1
20.	22524	Screw	2
21.	35767	Sewing Head Key	2
22.	36273S	Needle Bar Bushing, lower	1
23.	36273R	Cover Thread Carrier and Hook Driving Sleeve Bushing	1
24.	660-739	Oil Lip Seal	2
25.	36293P	Felt	1
26.	22777B	Screw, for frame chip guard	1
27.	36279L	Spring, for frame chip guard	1
28.	36279N	Frame Chip Guard	1
29.	36279M	Washer, for frame chip guard	1
30.	22881A	Screw, for right presser foot guide	1
31.	36278K	Presser Foot Guide, right	1
-	36278S	Presser Foot Guide, right, for styles 36200L202-52, L202-60	1
32.	36217A	Needle Bar	1
33.	36278	Presser Bar	1
-	36278P	Presser Bar, for Style 36200L201-60	1

34. thru 63. See Following page



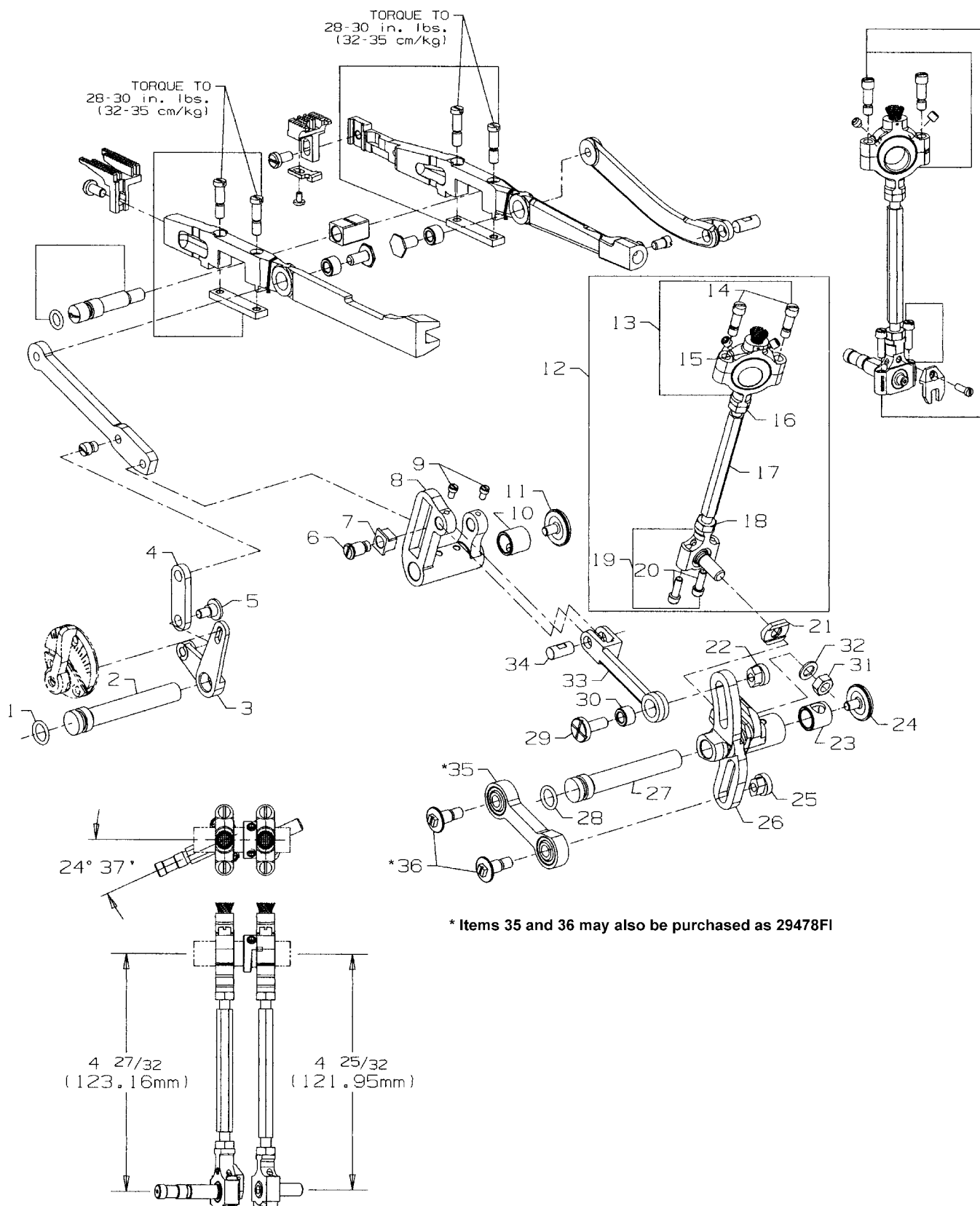
DETACHABLE HEAD, HEAD COVERS, NEEDLE BAR & NEEDLE BAR HEAD

Ref.			Amt.
No.	Part No.	Description	Req.
1. thru 33. See Preceding page			
34.	36278L	Presser Foot Guide, left	1
-	36278R	Presser Foot Guide, left, for styles 36200L202-50, L202-60	1
35.	22653B-8	Screw, for left presser foot guide	2
36.	8372A	Washer	2
37.	36218A52	Needle Head, for 5.2 Gauge	1
-	36218A60	Needle Head, for 6.0 Gauge	1
38.	22738H	Screw, for needles and retainer	5
39.	22524	Screw, for left head cover	2
40.	36289A	Head Cover, left	1
41.	36289J	Gasket, for left head cover	1
42.	6042A	Washer	1
43.	318	Screw, for connecting head to main frame	1
44.	664F-16	Taper Pin	1
45.	22560A	Screw, for presser bar guide stud	1
46.	36278F	Spring, for presser bar	1
-	36278U	Spring, for presser bar, for styles 36200L202-50, L202-60	1
47.	36278M	Presser Bar Regulating Screw	1
48.	36294E	Oil Guard	1
49.	22585C	Screw	1
50.	660-1131	Knurled Knob	1
51.	28C	Screw	2
52.	660-1130	Knurled Nut	1
53.	36290E	Threaded Sleeve	1
54.	36237M	Collar Bumper	1
55.	36278T	Screw Stud	1
56.	29476YP	Sewing Guard Assembly	1
57.	9937	Nut	1
58.	35896D	Sewing Guard	1
59.	666-340A	Bumper Plug	1
60.	WZ0641510KP	Spring Washer	2
61.	22758E	Screw	1
62.	36283P	Mounting Bracket	1
63.	22585B	Screw	2



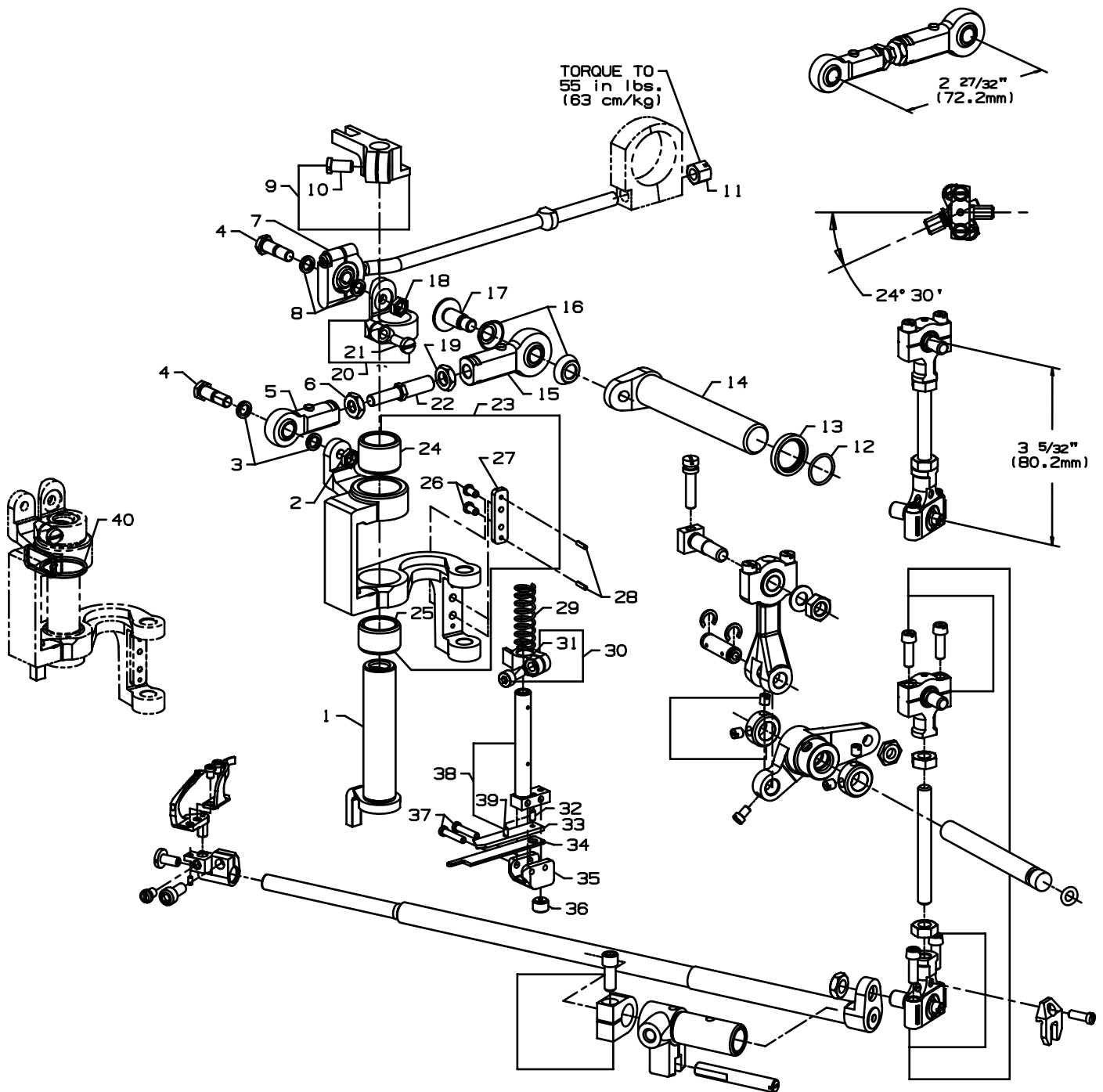
DIFFERENTIAL & MAIN FEED BARS, FEED DOGS & FEED LIFT ECCENTRIC ASSEMBLY

Ref. No.	Part No.	Description	Amt. Req.
1.	22845M	Screw, for differential feed bar driving link	1
2.	36236F	Differential Feed Bar Driving Link	1
3.	36234N	Feed Bar Eccentric Stud	1
4.	660-220	"O"Ring	1
5.	36234F	Differential Feed Bar	1
6.	36234G	Feed Bar Plate	1
7.	22587H	Screw	2
8.	22528	Screw, for differential feed dog	1
9.	36226A	Differential Feed Dog, marked "FV", 14 teeth per inch, for Styles 36200L100-52, L100-60, L200-52, L200-60, L201-60, T300-52, T300-60, U300-52, U300-60	1
-	36226B	Differential Feed Dog, marked "PB", 16 teeth per inch	1
-	36226K	Differential Feed Dog, 16 teeth per inch, for styles 36200L202-52, L202-60	1
-	36226H	Differential Feed Dog, marked "PQ", 14 teeth per inch, .050" (1.27mm) step on right side for style 36200L210-52	1
-	36226J	Differential Feed Dog, marked "VU", 16 teeth per inch, .050" (1.27mm) step on right side for style 36200L210-60	1
10.	22781G	Screw, for needle guard	1
11.	36225A	Needle Guard	1
12.	22528	Screw, for main feed dog	1
13.	36205A	Main Feed Dog, marked "PK", 14 teeth per inch, for Styles 36200L100-52, L100-60, L200-52, L200-60, T300-52, T300-60, U300-52, U300-60	1
-	36205B	Main Feed Dog, marked "PL", 16 teeth per inch	1
-	36205M	Main Feed Dog, marked "AAK", 14 teeth per inch, for styles 36200L201-60	1
-	36205N	Main Feed Dog, 16 teeth per inch, for styles 36200L202-52, L202-60	1
-	36205H	Main Feed Dog, marked "PR", 14 teeth per inch, .050" (1.27mm) step on right side for Styles 36200L210-52	1
-	36205J	Main Feed Dog, marked "VV", 16 teeth per inch, .050" (1.27mm) step on right side for Styles 36200L210-60	1
14.	36234E	Main Feed Bar	1
15.	22578H	Screw	2
16.	36234G	Feed Bar Plate	1
17.	CQ200000000	Yarn	2
18.	36234C	Feed Bar Slide Block	1
19.	36236H	Bushing	2
20.	36236G	Driving Link Stud	2
21.	33174B	Screw	1
22.	36236E	Main Feed Bar Drive Link	1
23.	62238A	Link Pin	1
24.	29478CS	Feed Lift Eccentric Assembly	1
25.	29103T	Feed Lift Eccentric Assembly Ball Joint	1
26.	22894W	Set Screw	2
27.	22587E	Screw	2
28.	269	Nut, left thread	1
29.	36244	Connecting Rod	1
30.	18	Nut, right thread	1
31.	36244A	Ball Joint, complete	1
32.	22729C	Screw	2
33.	41255B	Ball Fork	1
34.	22747	Screw, for ball fork	1



FEED DRIVE ASSEMBLY, FEED ROCKER & LOOPER AVOID PARTS

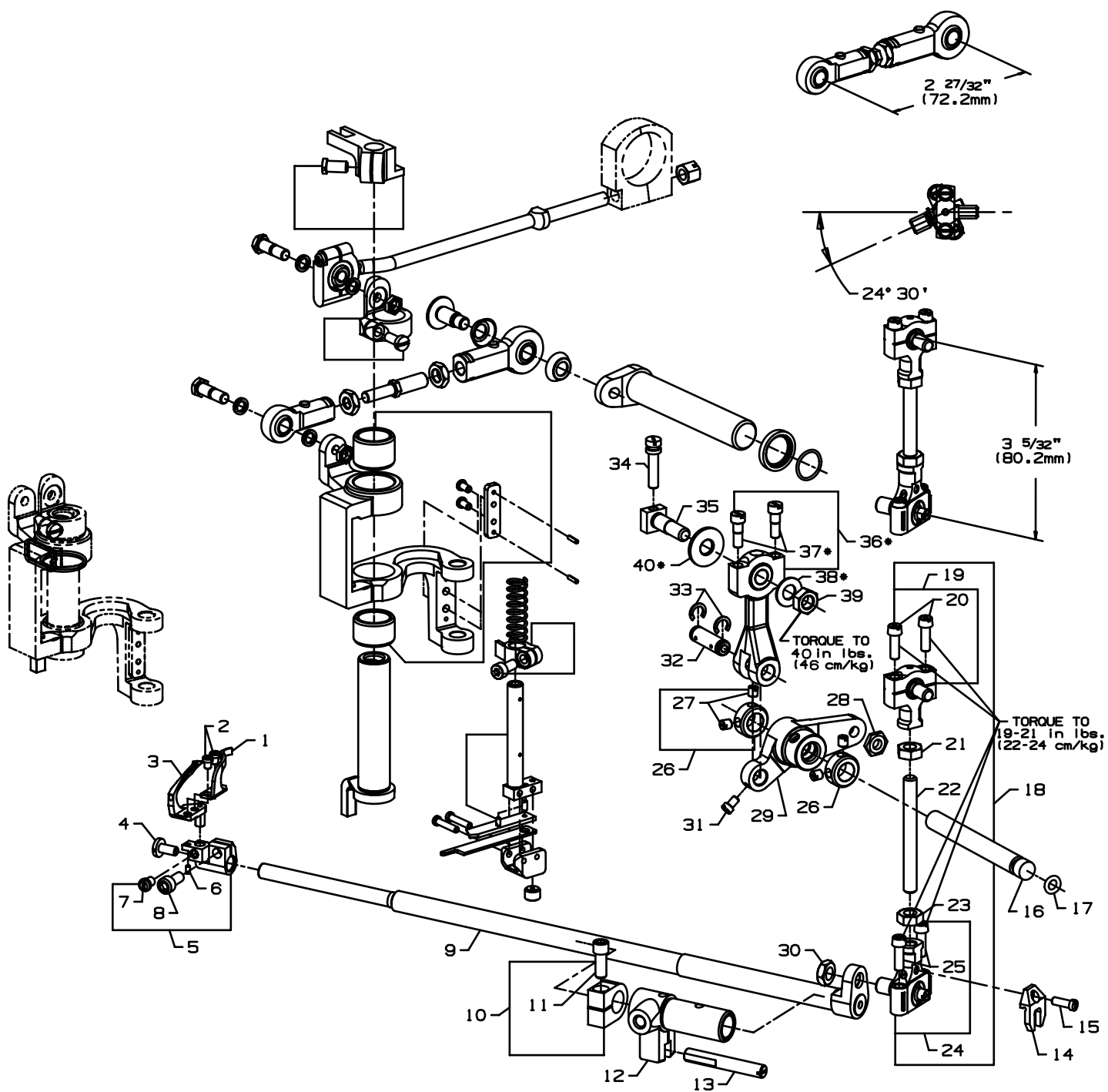
Ref. No.	Part No.	Description	Amt. Req.
1.	660-207	Oil Seal Ring	1
2.	36236A	Feed Rocker Shaft	1
3.	36237	Differential Feed Adjusting Lever	1
4.	36237A	Differential Feed Adjusting Link	1
5.	22504C	Screw	1
6.	36236J	Differential Driving Link Stud	1
7.	36236K	Differential Feed Driving Link Slide Block	1
8.	36236	Feed Rocker	1
9.	77	Screw	2
10.	36236B	Bushing	1
11.	22733G	Screw	1
12.	29478CT	Feed Drive Assembly	1
13.	29101J	Feed Drive Eccentric Assembly	1
14.	22587E	Screw	2
15.	22894W	Set Screw	2
16.	269	Nut, left thread	1
17.	43246	Connecting Rod	1
18.	18	Nut, right thread	1
19.	35846	Ball Joint	1
20.	22729C	Screw	2
21.	35846B	Washer	1
22.	35866	Nut	1
23.	36236B	Bushing	1
24.	22733G	Screw	1
25.	35766B	Nut	1
26.	35842J	Feed Drive and Looper Avoid Drive Lever	1
27.	36236A	Feed Drive Shaft	1
28.	660-207	Oil Seal Ring	1
29.	35836C	Screw, for feed rocker driving link	1
30.	36236H	Bushing	1
31.	258	Nut	1
32.	6042A	Washer	1
33.	36236C	Feed Rocker Driving Link	1
34.	62238A	Link Pin	1
35.	35851S	Connecting Rod	1
36.	35851P	Screw	2



KNIFE DRIVING PARTS

Ref. No.	Part No.	Description	Amt. Req.
1.	36251B	Cover Thread Carrier and Hook Driving Sleeve	1
2.	12934A	Nut	1
3.	51235G	Washer	2
4.	36245K	Screw	2
*5.	36245H	Rod End Bearing	1
*6.	36245D	Nut, right thread	1
7.	36251AE	Cover Thread Carrier and Hook Driving Connection Rod Ball Joint	1
8.	36275A	Washer	2
9.	36278J	Presser Bar Guide	1
10.	22569G	Screw	1
11.	52841H	Nut	1
12.	660-1019	"O"Ring	1
13.	36275	Torlon Washer	1
14.	36261	Knife Drive Lever	1
*15.	GR-36245G	Rod End Bearing	1
16.	36275B	Washer, seal	2
17.	36245J	Screw	1
18.	12934A	Nut	1
*19.	36245E	Nut, left thread	1
20.	36251C	Sleeve Driving Lever, for styles 36200L100-52, L200-52, L202-52, L210-52, T300-52, U300-52	1
-	36251V	Sleeve Driving Lever, for styles 36200L100-60, L200-60, L202-60, L210-60, T300-60, U300-60	1
21.	22585	Screw	1
*22.	36245F	Stud, Rod End Bearing	1
23.	36273U	Knife Driving Bracket	1
24.	36273Q	Bushing	1
25.	36273P	Bushing	1
26.	605A	Screw	2
27.	36273J	Knife Holder Guide Plate	1
28.	660-219D	Roll Pin	2
29.	36273C	Knife Holder Spring	1
30.	36273K	Knife Holder Guide Collar	1
31.	22729M	Screw	1
32.	22799N	Screw	1
33.	36273D	Knife Support	1
34.	36270C	Knife, upper	1
35.	36273G	Knife Holder	1
36.	22894X	Screw	1
37.	22767A	Screw	2
38.	36273A	Knife Holder Shank	1
39.	1096B	Screw	1
40.	CQ200000000	Oil Wick	1

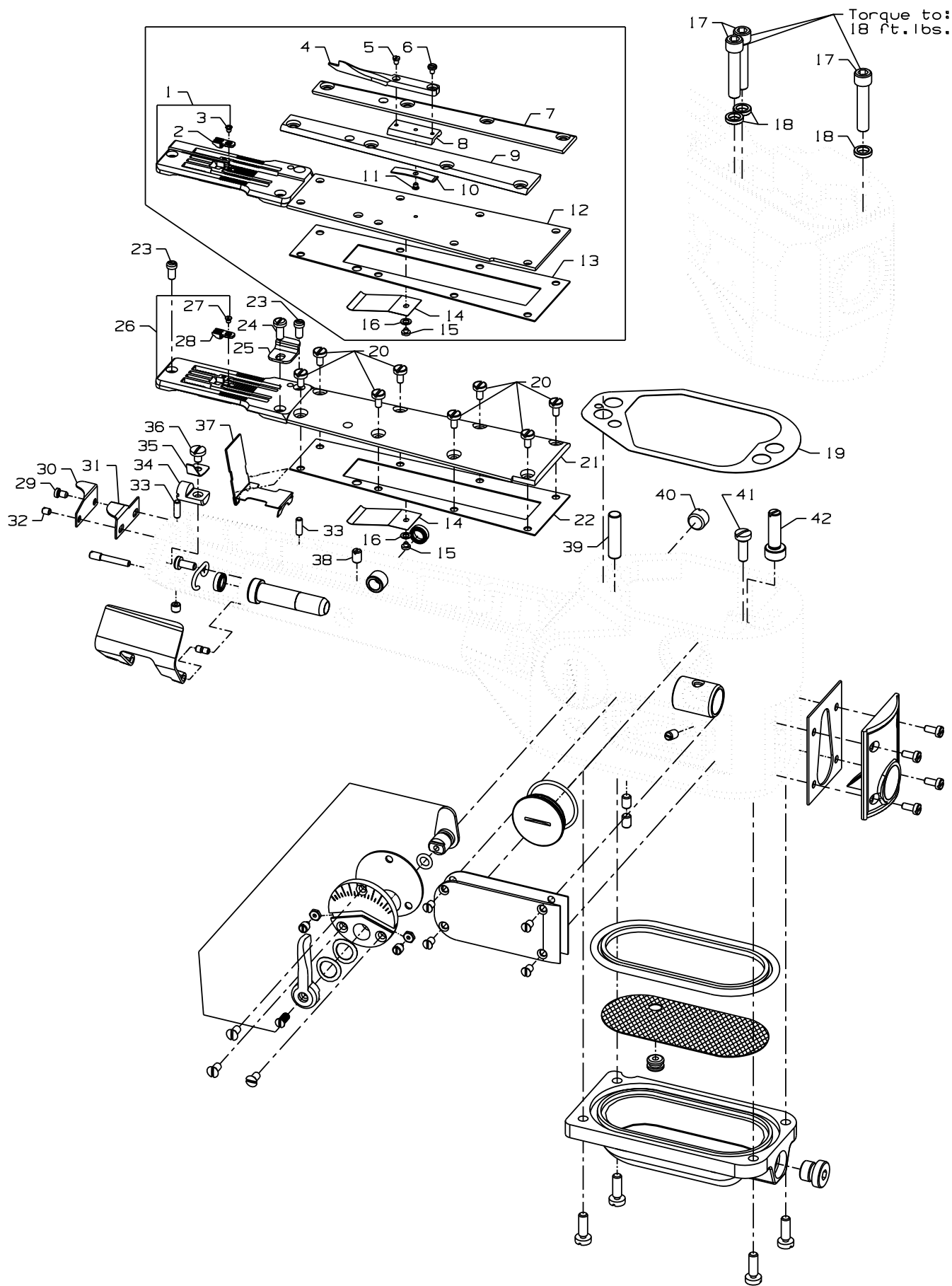
* May also be purchased assembled
and set to length as 29478FJ.



* Items 36, 37, 38, and 40 are part of Looper Drive connection kit 29478FG

LOOPER ROCKER SHAFT & LOOPER ROCKER DRIVE PARTS

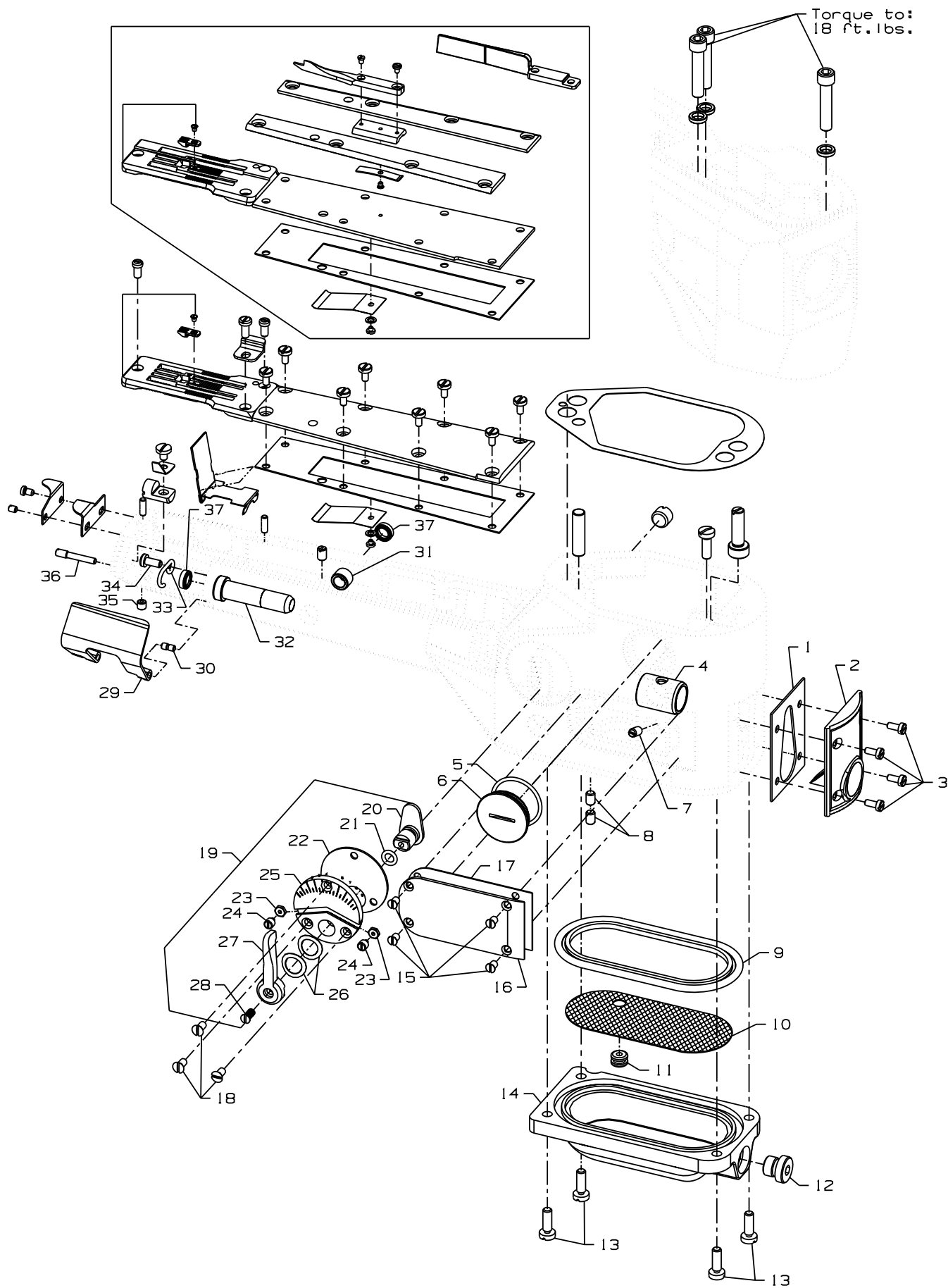
Ref. No.	Part No.	Description	Amt. Req.
1.	36210	Looper Mounted Needle Guard, marked "FZ"	1
2.	604	Screw, for needle guard	2
3.	36208A	Looper	1
4.	22585A	Screw	1
5.	36248	Looper Holder	1
6.	1096B	Looper Adjusting Screw	1
7.	22564D	Screw	1
8.	22652A-6	Screw	1
9.	36249	Looper Rocker Shaft	1
10.	35751G	Looper Shaft Collar	1
11.	22572B	Screw	1
12.	36249B	Looper Shaft Sleeve	1
13.	36278C	Guide Stud	1
14.	41255B	Ball Fork	1
15.	22747	Screw	1
16.	36253B	Looper Drive Lever Shaft	1
17.	660-221	Oil Seal Ring	1
18.	29478CU	Looper Drive Connecting Rod Assembly	1
19.	35851L	Ball Joint, upper	1
20.	22729C	Screw	2
21.	269	Nut, left thread	1
22.	4761	Connecting Rod	1
23.	18	Nut, right thread	1
24.	39145A	Ball Joint, lower	1
25.	22729C	Screw	2
26.	12865	Collar	2
27.	88	Screw	2
28.	15037A	Nut	1
29.	36253A	Looper Drive Lever	1
30.	258A	Nut	1
31.	77	Screw	1
32.	52336	Link Pin	1
33.	660-215	Retaining Ring	2
34.	22795B	Screw	1
35.	36253G	Looper Drive Crank Stud	1
36.	36245B	Looper Drive Connecting Rod and Ferrule Sub-Assembly	1
37.	97A	Screw	1
38.	39543N	Washer	1
39.	269	Nut, left thread	1
40.	53636C	Washer	1



LAP FORMER, MISCELLANEOUS CYLINDER COVERS, THROAT PLATE, & CHAIN CUTTING KNIFE

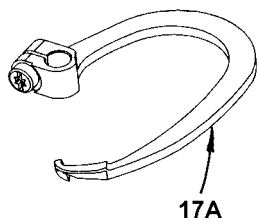
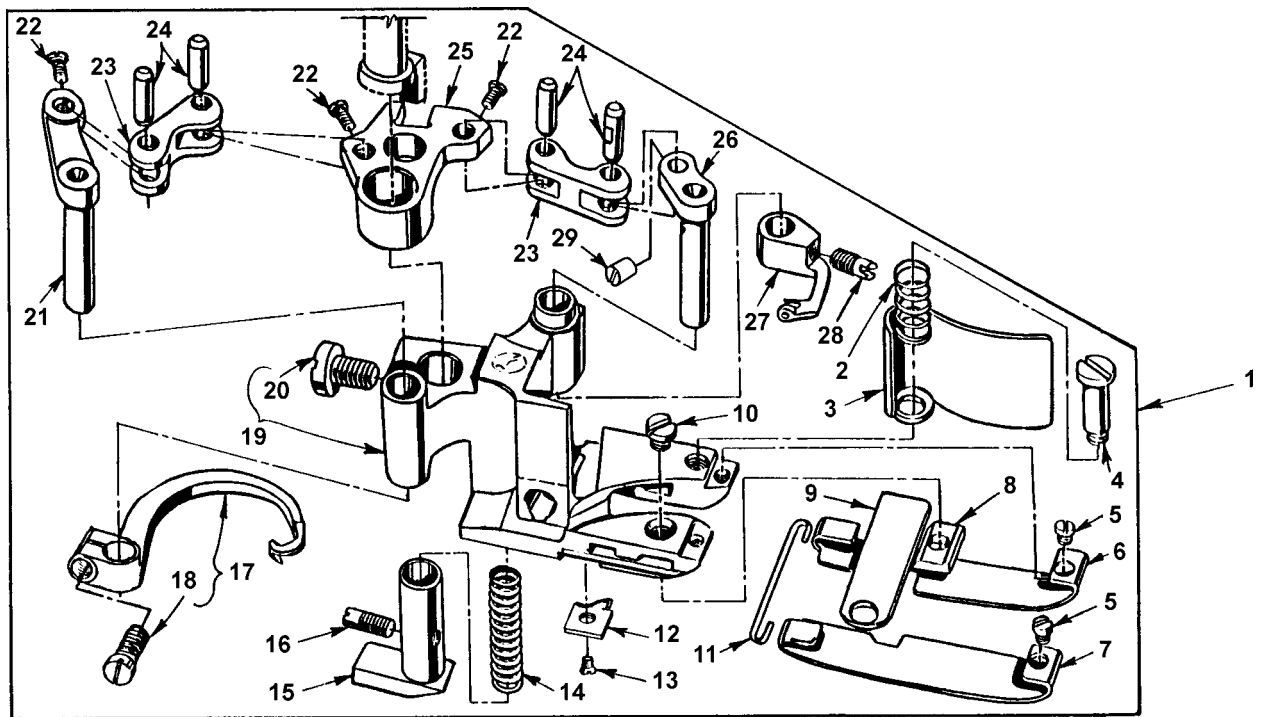
Ref. No.	Part No.	Description	Amt. Req.
1.	36224H	Throat Plate, for Style 36200L210-52	1
-	36224K	Throat Plate, for Style 36200L210-60	1
2.	36240	Stitch Tongue, marked "D", for Throat Plates 36224H	1
-	36240J	Stitch Tongue, marked "AC", for Throat Plates 36224K	1
3.	22716A	Screw, for stitch tongue	1
4.	23420DE	Lap Former, for styles 36200L200-52, L200-60, L210-52, L210-60, U300-52, U300-60	1
-	23420CZ	Lap Former, for style 36200L201-60	1
-	23420DJ	Lap Former, for styles 36200L202-52, L202-60	1
5.	22738B	Screw, for lap former	1
6.	73A	Screw, for lap former	1
7.	36283J	Gib, right, for styles 36200L200-52, L200-60, L201-60, L202-52, L202-60, L210-52, L210-60, U300-52, U300-60	1
8.	23423X	Lap Former Slide Block, for 36200L200-52, L200-60, L201-60, L210-52, L210-60, U300-52, U300-60	1
-	23423AE	Lap Former Slide Block, for 36200L202-52, L202-60	1
9.	36283H	Gib, left, for styles 36200L200-52, L200-60, L201-60, L202-52, L202-60, L210-52, L210-60, U300-52, U300-60	1
10.	23424Z	Spring, for lap former slide block	1
11.	22716A	Screw, for lap former slide block spring	1
12.	36283G	Cylinder Cover, for styles 36200L200-52, L200-60, L201-60, L202-52, L202-60, L210-52, L210-60, U300-52, U300-60	1
13.	36283F	Gasket, for cylinder cover, all styles	1
14.	36284E	Upper Lint Shield, all styles	1
15.	22798	Screw, upper lint shield	1
16.	40-107	Washer	1
17.	22653E-24	Screw, for joining cylinder to main frame	3
18.	35876U	Washer	3
19.	GR-36284	Gasket	1
20.	98A	Screw, for cylinder cover	8
21.	36283E	Cylinder Cover	1
22.	36283F	Gasket, for cylinder cover	1
23.	22562A	Screw, for throat plate	2
*24.	22849	Screw, for edge guide	1
*25.	36203	Edge Guide	1
26.	C36224A	Throat Plate, for Style 36200L100-52, L200-52, T300-52, U300-52	1
-	C36224J	Throat Plate, for Style 36200L200-60, L100-60, T300-60, U300-60	1
-	C36224N	Throat Plate, for Style 36200L201-60	1
-	C36224P	Throat Plate, for Style 36200L202-52	1
-	C36224Q	Throat Plate, for Style 36200L202-60	1
27.	22716A	Screw, for stitch tongue	1
28.	36240	Stitch Tongue, marked "D", for Throat Plates C36224A, C36224P	1
-	36240J	Stitch Tongue, marked "AC", for Throat Plates C36224J, C36224Q, C36224N	1
29.	22KH	Screw, for chain cutting knife	1
30.	36296B	Guard, for chain cutting knife	1
31.	36296A	Chain Cutting Knife	1
32.	22801	Screw, for chain cutting knife	1
33.	36251K	Dowel Pin	2
34.	36283C	Cylinder Hinged Spring Support Stud	1
35.	36283B	Spring	1
36.	22585C	Screw, spring	1
37.	36284Z	Lower Lint Shield	1
38.	531	Screw	1
39.	667D-16	Dowel Pin	1
40.	22571A	Plug Screw	1
41.	22596	Screw, for feed bar eccentric stud	1
42.	36229A-1	Cylinder Alignment Eccentric Pin	1

* These parts are extra send and charge Items



CYLINDER BUSHINGS, DIFFERENTIAL FEED CONTROL ASSEMBLY & MISCELLANEOUS CYLINDER COVERS

Ref. No.	Part No.	Description	Amt. Req.
1.	36284R	Gasket, for front cylinder cover and oil gauge	1
2.	36284C	Cylinder Cover and Oil Gauge, front	1
3.	J87J	Screw, for front cylinder cover and oil gauge	4
4.	36249A	Bushing, for looper shaft, front	1
5.	660-1115	"O" Ring	1
6.	22539AL	Plug Screw	1
7.	22560A	Screw, for guide stud	1
8.	531	Screw	2
9.	36284F	Gasket, for bottom cover	1
10.	36293G	Screen, for bottom cover	1
11.	661-150	Rubber "O" Ring, for screen	1
12.	999-196	Oil Drain Plug Screw	1
13.	22596	Screw, for bottom cover	4
14.	36282	Bottom Cover	1
15.	22766	Screw, for cylinder side cover	4
16.	36286	Cylinder Side Cover	1
17.	36284Q	Gasket, for cylinder side cover	1
18.	87A	Screw, for differential feed control assembly	3
19.	29478CZ	Differential Feed Control Assembly, complete	1
20.	36237E	Adjusting Lever	1
21.	660-220	Oil Seal Ring	1
22.	36238F	Gasket	1
23.	41071J	Nut	2
24.	35768C	Stop Screw	2
25.	36238	Adjusting Plate	1
26.	36237J	Spring Washer	2
27.	36237K	Operating Lever	1
28.	538	Screw	1
29.	36283K	Cylinder Hinged Cover	1
30.	35883G	Pin	1
31.	36237L	Bushing, for feed bar eccentric stud	1
32.	35850F	Bushing, for looper shaft, rear	1
33.	36256B	Looper Thread Guide Wire	1
34.	22849	Screw, for looper thread guide wire	1
35.	22894P	Screw, for cylinder hinged spring support stud	1
36.	22791E	Screw Pin	1
37.	660-1117	Oil Seal	2

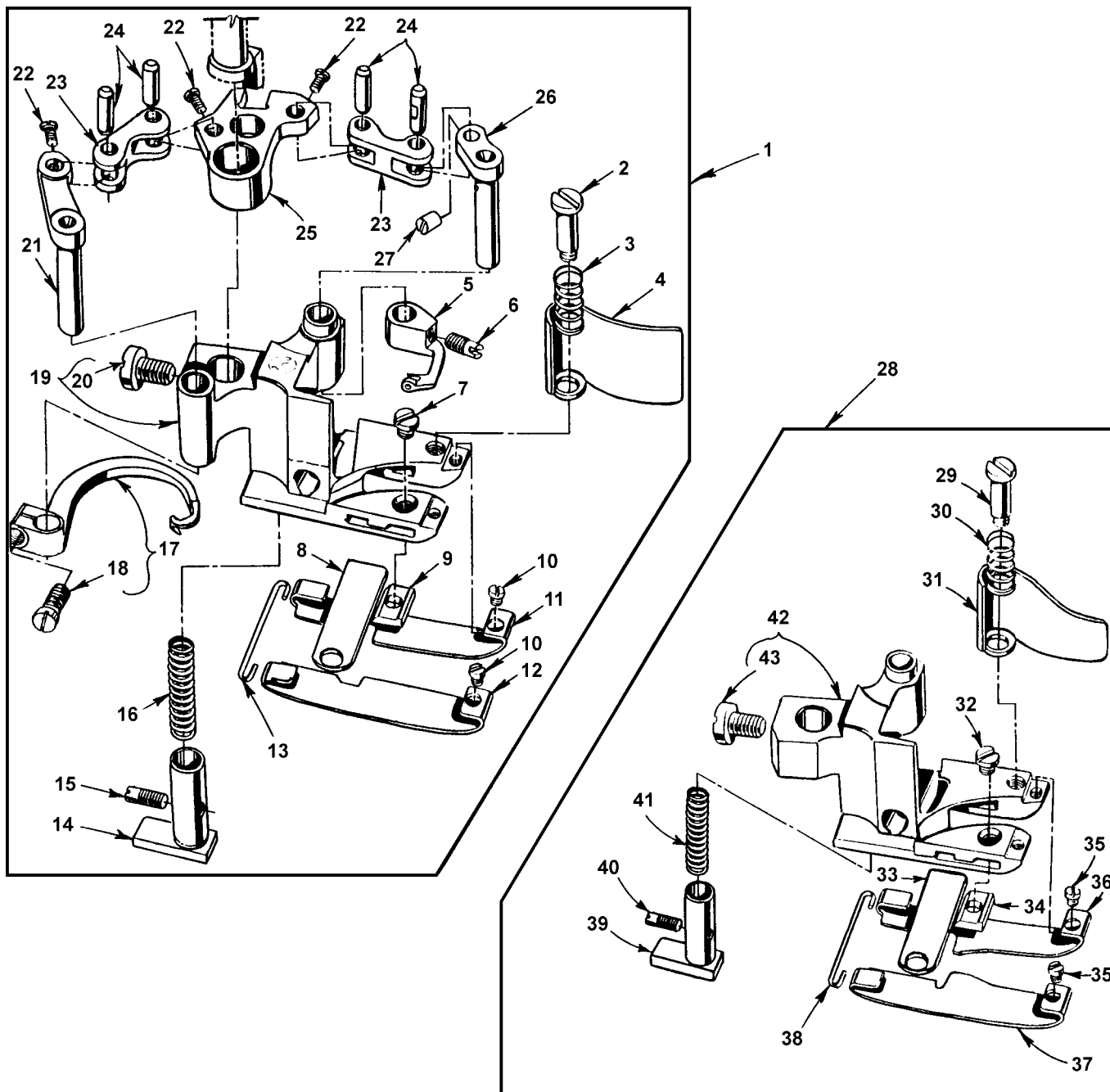


**PRESSER FOOT
FOR STYLES
36200L200-52, L200-60, L201-60, L210-52, L210-60, U300-52, U300-60**

Ref. No.	Part No.	Description	Amt. Req.
1.	36220E	Presser Foot, complete, for Style 36200L200-52, U300-52	1
-	36220H	Presser Foot, complete, for Style 36200L210-52	1
-	36220M	Presser Foot, complete, for Style 36200L210-60	1
-	36220V	Presser Foot, complete, for Style 36200L201-60	1
-	36220W	Presser Foot, complete, for Style 36200L200-60, U300-60	1
2.	36279D	Spring, for chip guard	1
3.	36279C	Chip Guard	1
4.	22731	Screw, for chip guard	1
5.	22738G	Screw, for presser foot shoe	2
#6.	36232AK	Presser Foot Shoe, right, 36220 E, 36220 W, 36220 V presser foot	1
-	36232AM	Presser Foot Shoe, right, 36220H presser foot	1
-	36232AP	Presser Foot Shoe, right, 36220M presser foot	1
#7.	36231AK	Presser Foot Shoe, left, 36220E, 36220 W, 36220 V presser foot	1
-	36231AM	Presser Foot Shoe, left, 36220H presser foot	1
-	36231AP	Presser Foot Shoe, left, 36220M presser foot	1
*8.	36250K	Stationary Knife Clamp, .213" (5.41mm) ID Mark "D"	1
*-	36250M	Stationary Knife Clamp, .222" (5.64mm) ID Mark "F"	1
*-	36250L	Stationary Knife Clamp, .226" (5.74mm) ID Mark "E"	1
9.	36250	Stationary Knife	1
10.	150	Screw, for stationary knife clamp	1
11.	36230D	Shoe Holding Wire	1
12.	36230R	Cloth Guide Plate	1
13.	22716A	Screw, for cloth guide plate	1
14.	36230C	Spring, for yielding section	1
15.	36230P	Yielding Section	1
16.	22565A	Screw, for yielding section	1
17.	36251AC	Cover Thread Hook, for 36220E, 36220H presser foot	1
-	36251AD	Cover Thread Hook, for 36220M, 36220W presser foot	1
17A	36251FE	Cover Thread Hook, for 36220V presser foot	1
18.	22562A	Screw, for cover thread hook	1
19.	36230M	Presser Foot Base, for 36220 E, 36220 W, 36220 V presser foot	1
-	36230S	Presser Foot Base, for 36220 H, 36220M presser foot	1
20.	94	Screw, for presser foot base	1
21.	36251H	Cover Thread Hook Driving Lever and Shaft	1
22.	22738P	Screw	3
23.	36251J	Link, for ref. no. 21, 25 and 26	2
24.	36251K	Link Pin	4
25.	36251L	Cover Thread Carrier and Hook Driving Segment	1
26.	36251G	Cover Thread Carrier Driving Lever and Shaft	1
27.	36251E	Cover Thread Carrier, for 36220E, 36220H presser foot	1
-	36251W	Cover Thread Carrier, for 36220M, 36220 W, 36220 V presser foot	1
28.	22565A	Screw, for cover thread carrier	1
29.	1096	Screw	1

* When replacing the stationary knife clamp, order the clamp that has the same I. D. mark as the one being replaced.

#See page 58-59 for other presser foot shoes available.

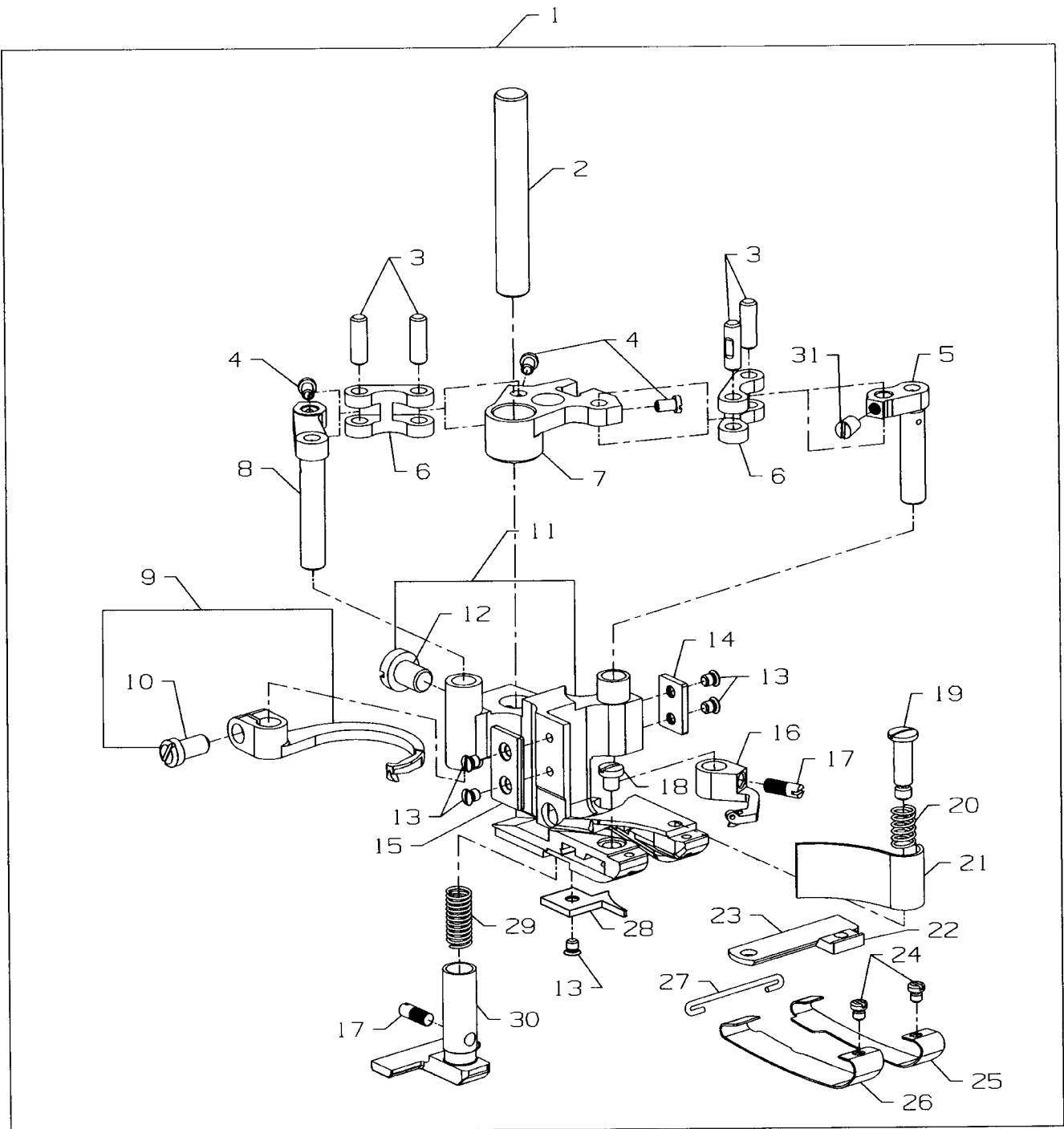


**PRESSER FOOT
FOR STYLES
36200L100-52, L100-60, T300-52, T300-60, U300-52, U300-60**

Ref. No.	Part No.	Description	Amt. Req.
1.	36220A	Presser Foot, complete, for Styles 36200L100-52, U300-52	1
-	36220K	Presser Foot, complete, for Styles 36200L100-60, U300-60	1
2.	22731	Screw, for chip guard	1
3.	36279D	Spring, for chip guard	1
4.	36279C	Chip Guard	1
5.	36251E	Cover Thread Carrier, for 36220A presser foot	1
-	36251W	Cover Thread Carrier, for 36220K presser foot	1
6.	22565A	Screw, cover thread carrier	1
7.	150	Screw, for stationary knife clamp	1
8.	36250	Stationary Knife	1
*9.	36250K	Stationary Knife Clamp, .213" (5.41mm) ID Mark "D"	1
*-	36250M	Stationary Knife Clamp, .222" (5.64mm) ID Mark "F"	1
*-	36250L	Stationary Knife Clamp, .226" (5.74mm) ID Mark "E"	1
10.	22738G	Screw, for presser foot shoe	2
#11.	36232AY	Presser Foot Shoe, right, for 36220A, K presser foot	1
#12.	36231AY	Presser Foot Shoe, left, for 36220A, K presser foot	1
13.	36230D	Shoe Holding Wire	1
14.	36230J	Yielding Section	1
15.	22565A	Screw, for yielding section	1
16.	36230C	Spring, for yielding section	1
17.	36251AC	Cover Thread Hook, for 36220A presser foot	1
-	36251AD	Cover Thread Hook, for 36220K presser foot	1
18.	22562A	Screw, for cross thread hook	1
19.	36230U	Presser Foot Base, for 36220 A, K presser foot	1
20.	94	Screw, for presser foot base	1
21.	36251H	Cover Thread Hook Driving Lever and Shaft	1
22.	22738P	Screw	3
23.	36251J	Link, for ref. no. 21, 25 and 26	2
24.	36251K	Link Pin	4
25.	36251L	Cover Thread Carrier and Hook Driving Segment	1
26.	36251G	Cover Thread Carrier Driving Lever and Shaft	1
27.	1096	Screw	1
28.	36220B	Presser Foot, complete, for Styles 36200T300-52, T300-60	1
29.	22731	Screw, for chip guard	1
30.	36279D	Spring, for chip guard	1
31.	36279H	Chip Guard	1
32.	150	Screw, for stationary knife clamp	1
*33.	36250	Stationary Knife	1
*-	36250K	Stationary Knife Clamp, .213" (5.41mm) ID Mark "D"	1
*-	36250M	Stationary Knife Clamp, .222" (5.64mm) ID Mark "F"	1
34.	36250L	Stationary Knife Clamp, .226" (5.74mm) ID Mark "E"	1
#35.	22738G	Screw, for presser foot shoe	2
#36.	36232BA	Presser Foot Shoe, right, for 36220 B presser foot	1
37.	36231BA	Presser Foot Shoe, left, for 36220 B presser foot	1
38.	36230D	Shoe Holding Wire	1
39.	36230J	Yielding Section	1
40.	22565A	Screw, for yielding section	1
41.	36230C	Spring, for yielding section	1
42.	36230G	Presser Foot Base, for 36220 B presser foot	1
43.	94	Screw, for presser foot base	1

* When replacing the stationary knife clamp, order the clamp that has the same I. D. mark as the one being replaced.

#See page 58-59 for other presser foot shoes available.



**PRESSER FOOT
FOR STYLES
36200L202-52, L202-60**

Ref. No.	Part No.	Description	Amt. Req.
1.	36220AE	Presser Foot, complete, for Style 36200L202-52	1
-	36220AF	Presser Foot, complete, for Style 36200L202-60	1
2.	22-331	Pin	1
3.	36251K	Link Pin, for 5, 6 and 8	4
4.	22738P	Screw	3
5.	36251G	Cover Thread Lever	1
6.	36251J	Driving Lever Link	2
7.	36251L	Driving Segment	1
8.	36251H	Cover Thread Hook Lever	1
9.	36251AC	Cover Thread Hook, For 36220AE presser foot	1
-	36251AD	Cover Thread Hook, For 36220AF presser foot	1
10.	22562A	Screw	1
11.	36230AR	Presser Foot	1
12.	94	Screw	1
13.	22716A	Screw	5
14.	36230AP	Plate, Right	1
15.	36230AH	Plate, Left	1
16.	36251E	Cover Thread Carrier, For 36220AE presser foot	1
-	36251W	Cover Thread Carrier, For 36220AF presser foot	1
17.	22565A	Screw	2
18.	150	Screw	1
19.	22731	Screw	1
20.	36279D	Spring, Chip Guard	1
21.	36279P	Chip Guard	1
22.	36250K	Stationary Knife Clamp, .213"(5.14mm) ID Mark"D"	1
-	36250M	Stationary Knife Clamp, .222"(5.64mm) ID Mark"F"	1
-	36250L	Stationary Knife Clamp, .226"(5.74mm) ID Mark"E"	1
23.	36250	Stationary Knife	1
24.	22738G	Screw	1
#25.	36232BG	Presser Foot Shoe, Right	1
#26.	36231BG	Presser Foot Shoe, Left	1
27.	36230D	Shoe Holding Wire	1
28.	36230AS	Cloth Guide	1
29.	36230AJ	Spring, Yielding Section	1
30.	36230AL	Yielding Section	1
31.	1096	Screw	1

* When replacing the stationary knife clamp, order the clamp that has the same I. D. mark as the one being replaced.

#See page 58-59 for other presser foot shoes available.

PRESSER FOOT SHOE CHART

1) THICKNESS OF SHOES—

THICK: approximately .020" (0.5mm) thick, for medium to heavy weight materials that require heavy presser foot pressure.

THIN: approximately .014" (0.35mm) thick, for light to medium weight materials, that require light presser foot pressure and when marking of the material by the shoes and/or feed dogs is a problem.

2) WIDTH OF SHOES—

NARROW: for medium heavy to heavy weight materials.

MEDIUM: for medium weight materials.

WIDE: for light weight materials.

3) SPACING BETWEEN INSIDE OF SHOES—

AVAILABLE SPACINGS:

1/64" (0.4mm) spacing—

Very light materials

1/32" (0.9mm) to 1/16" (1.6mm) spacing—

Lightweight materials

5/64" (2mm) to 3/32" (2.4mm) spacing—

Medium weight materials

5/32" (4mm) to 3/16" (4.8mm) spacing—

Heavy weight materials

4) LENGTH OF TOE—

SHORT TOE: The front part of the toe extends past the front of the presser foot by approximately 3/64" (1mm). This is a good all around shoe that adapts easily to a variety of operations, and is also good for sewing curves and corners.

EXTENDED TOE: The front of the toe extends past the front of the presser foot approximately 3/16" (4.7mm). This shoe has more feeding surface to the front of the presser foot than the short toe and is ideal for long flat seams. For many operations it also allows the operator to start the material without lifting the presser foot.

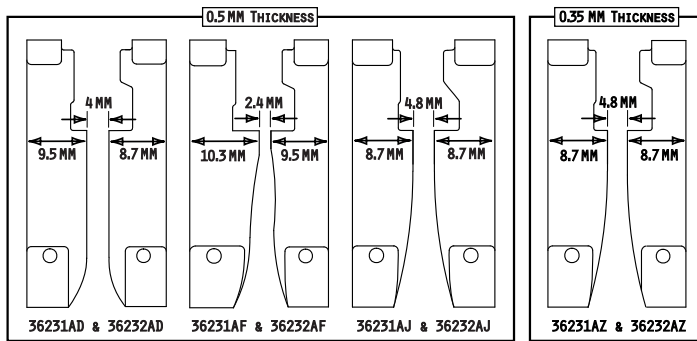
5) SHOE FINISHES—

HIGH POLISHED FINISH: For most general sewing operations. Steel is polished so that surface is smooth and free of tool marking for easy feeding and less drag on the material.

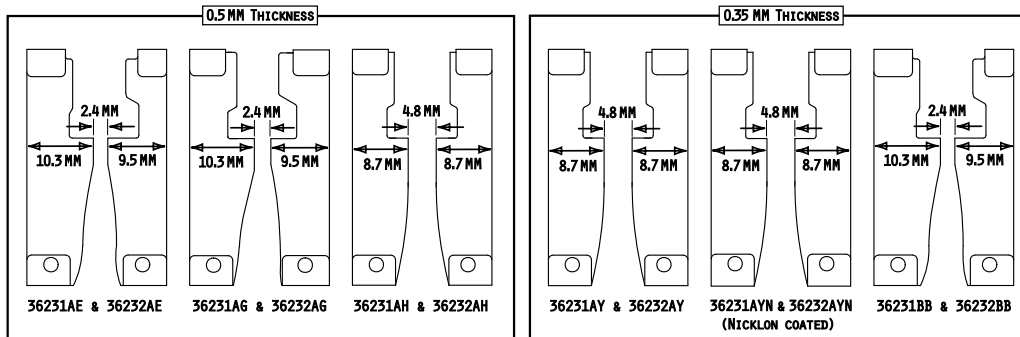
NICKLON COATING: For hard to feed materials and surfaces. Steel is polished so that surface is smooth and free of tool markings and then treated with a special hard and slippery Nicklon coating to allow the material to feed much smoother and easier than the standard High Polished Finish.

PRESSER FOOT SHOE	STANDARD ON PRESSER FOOT	FURNISHED ON MACHINE STYLE	SAME AS
36231AD	NONE	NONE	
36232AD			
36231AE	NONE	NONE	36231BB
36232AE			36232BB
36231AF	NONE	NONE	
36232AF			
36231AG	NONE	NONE	
36232AG			
36231AH	NONE	NONE	36231AY
36232AH			36232AY
36231AJ	NONE	NONE	36231AZ
36232AJ			36232AZ
36231AK	NONE	NONE	36231AW
36232AK			36232AW
36231AL	NONE	NONE	36231BA
36232AL			36232BA
36231AM	36220H	36200L210-52	
36232AM			
36231AP	36220M	36200L210-60	
36232AP			
36231AW	36220E 36220W	36200L200-52, 36200L200-60, 36200L200-52, 36200U300-60	36231AK
36232AW			36232AK
36231AWN	NONE	NONE	
36232AWN			
36231AY	36220A 36220K 36220L	36200L100-52, 36200L100-60	36231AH
36232AY			36232AH
36231AYN	NONE	NONE	
36232AYN			
36231AZ	NONE	NONE	36231AJ
36232AZ			36232AJ
36231BA	36220B	36200T300-52, 36200T300-60	36231AL
36232BA			36232AL
36231BB	36220 36220J	NONE	36231AE
36232BB			36232AE
36232BD	36220X 36220Y	36200L202-52, 36200L202-60	
36232BD			
36231BF	NONE	NONE	
36232BF			
36231BFN	NONE	NONE	
36232BFN			

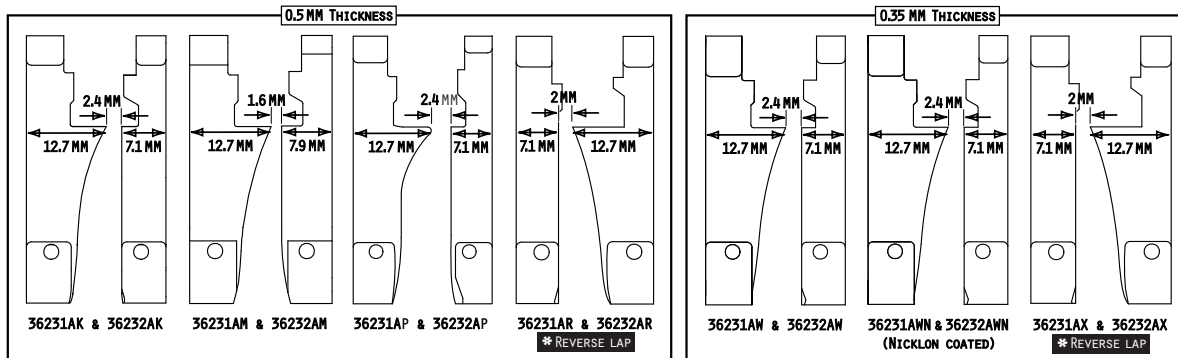
PRESSER FOOT SHOE CHART



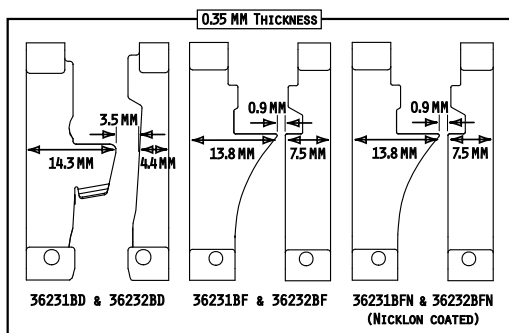
One-side Trim
Lapseaming
Two-side Trim
Flatseaming
Extended Toe



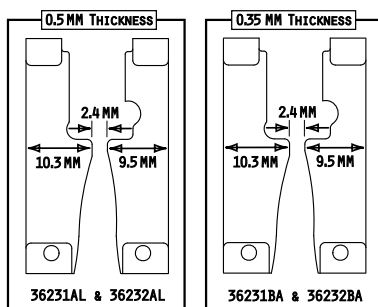
One-side Trim
Lapseaming
Two-side Trim
Flatseaming
Short Toe



Two-side Trim
Lapseaming
Extended Toe



Two-side Trim
Lapseaming
Short Toe



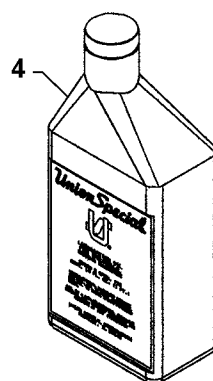
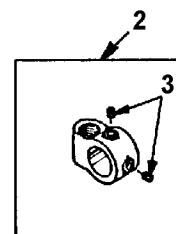
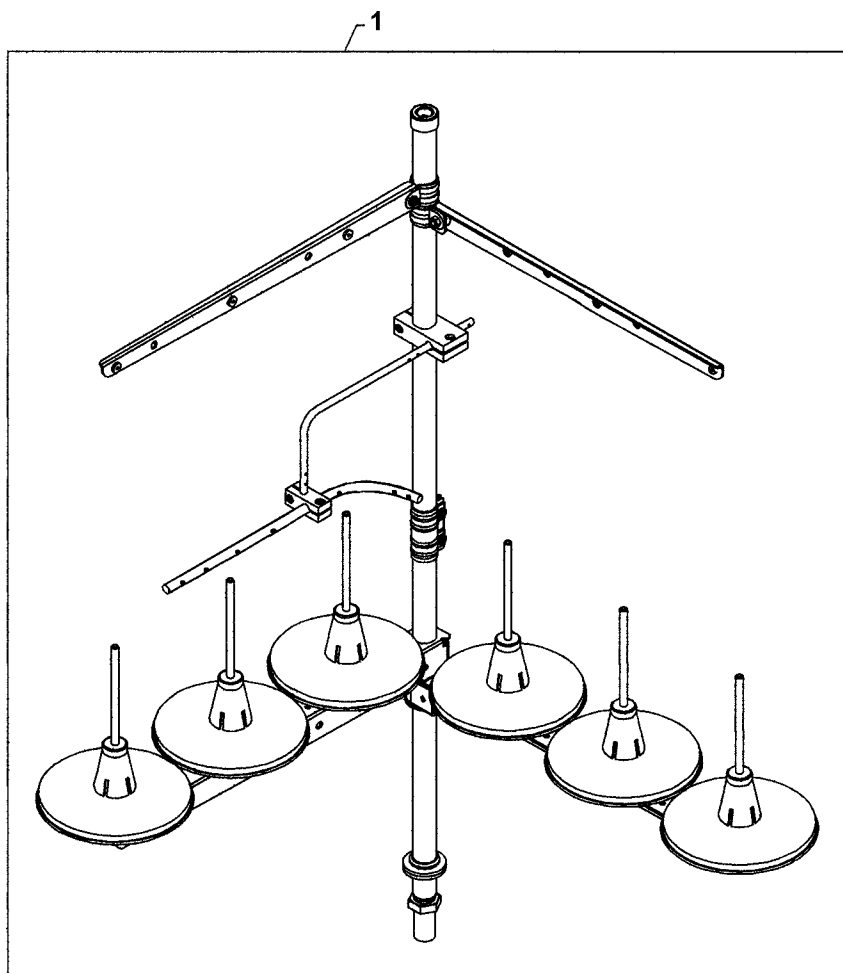
One- or Two-side Trim
Taping
Short Toe

* Reverse lap presser foot shoes
used on 36220N presser foot ONLY

Spacing between shoes
can vary from 0.1–0.2mm

Drawings not to scale

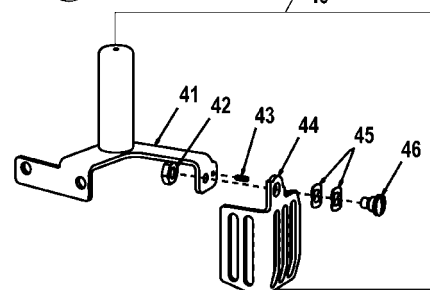
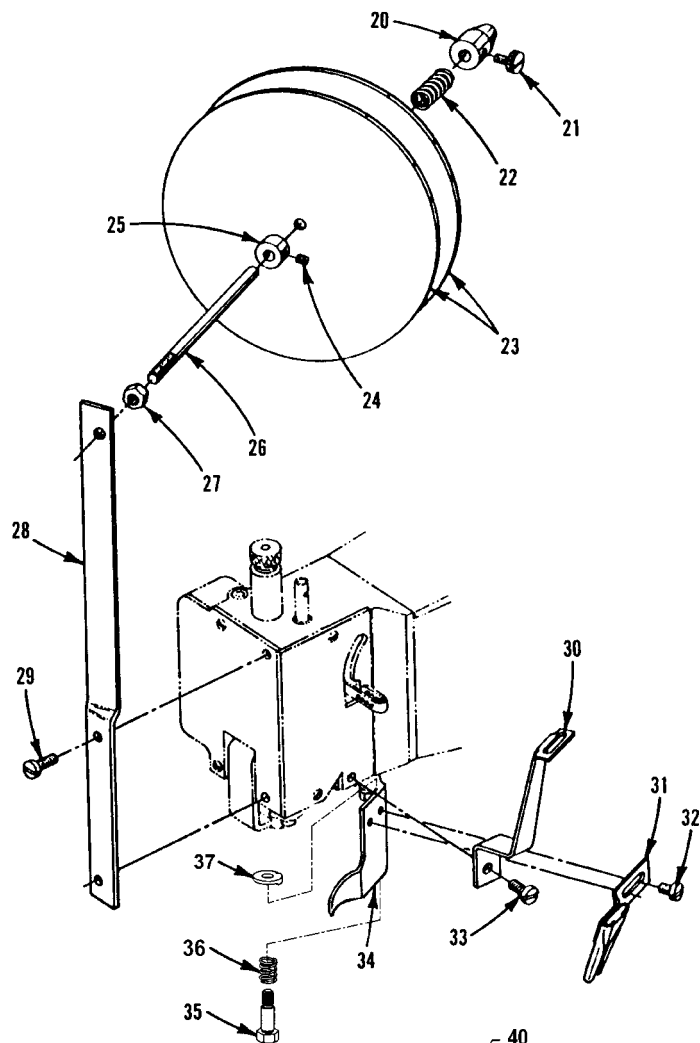
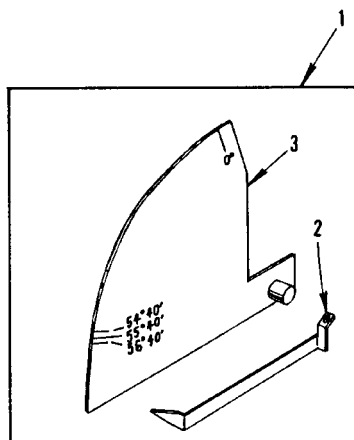
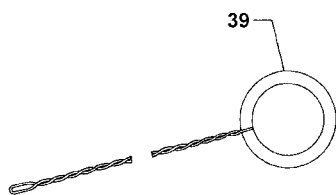
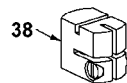
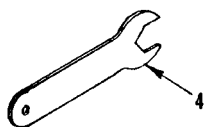
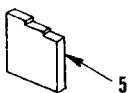
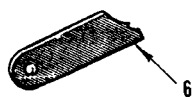
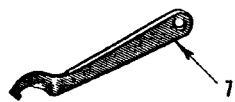
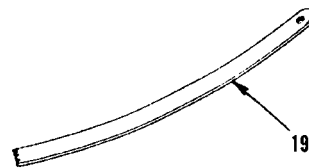
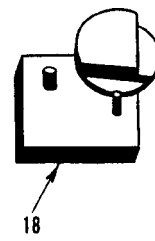
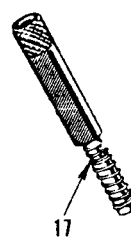
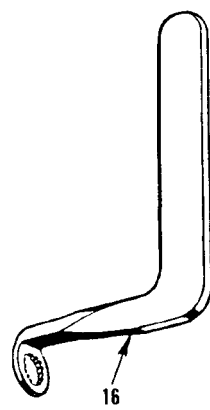
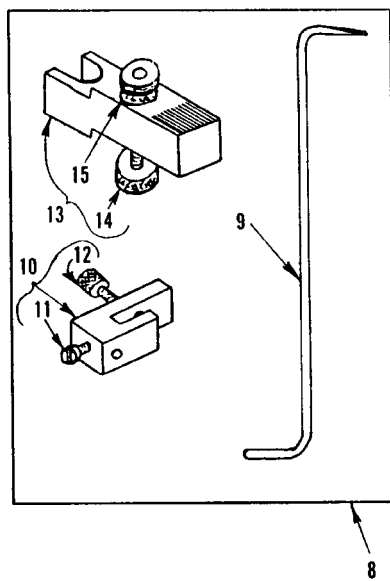
NICKLON® coating by Bales Mold Service Inc.



THREAD STAND

Ref. No.	Part No.	Description	Amt. Req.
1.	21101W6	Thread Stand, complete	1
*2.	21233KS	Bracket Connection, marked "KS"	1
*3.	22651CD-5	Screw, for bracket connection	2
4.	28604R	Oil	1

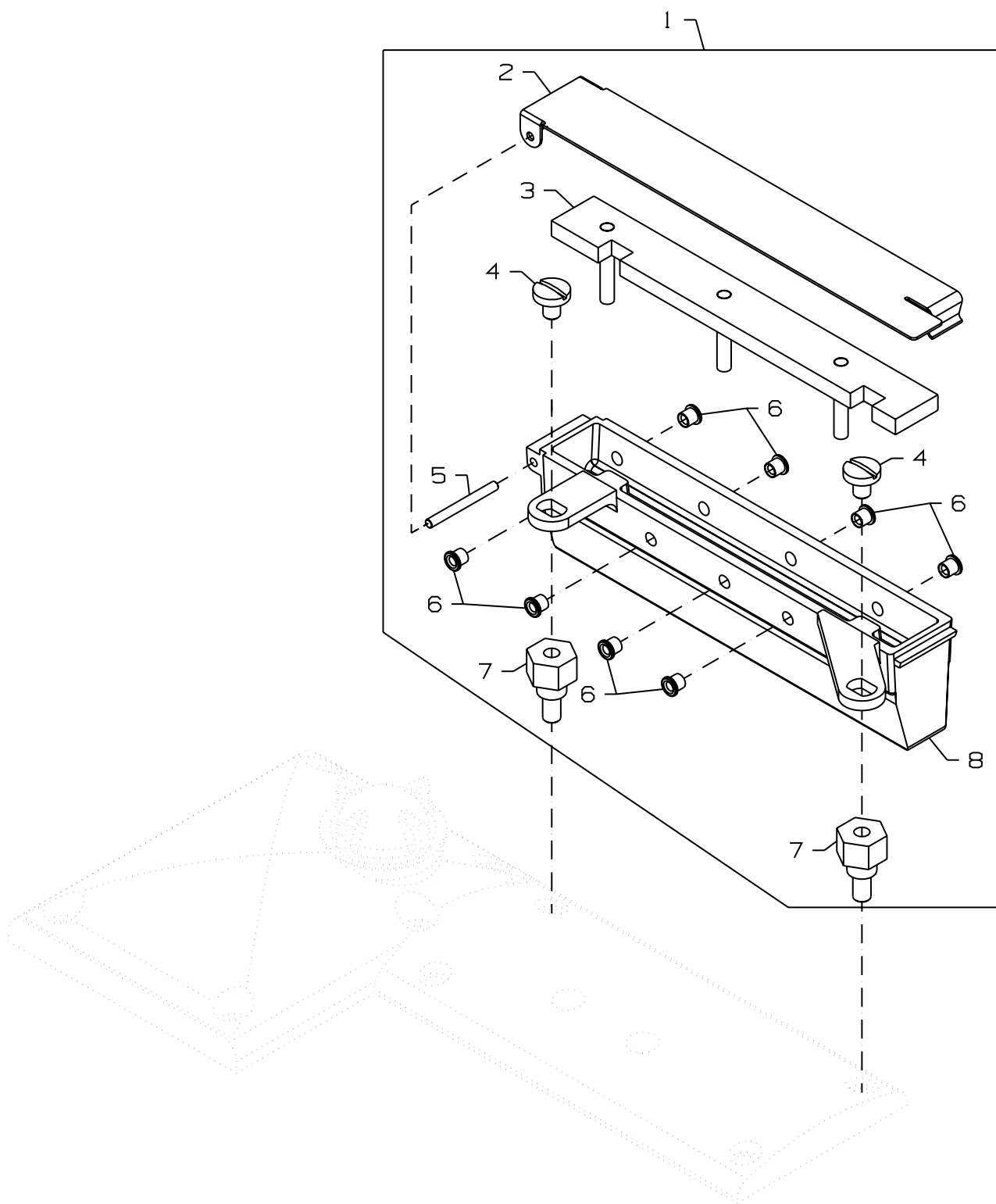
* These parts used with pedestal.



MISCELLANEOUS GAUGES & TAPE REEL PARTS

Ref. No.	Part No.	Description	Amt. Req.
1.	21227CN	Looper Travel Gauge, complete	1
2.	21227CM	Looper Travel Gauge Pointer	1
3.	21227CS	Looper Travel Gauge Plate	1
4.	21388AZ	Wrench, for driving link stud	1
5.	21227BU	Needle Height Gauge, for all Styles except 36200L100-60, L202-60, L210-60	1
-	21227DS	Needle Height Gauge, for Styles 36200L100-60, L202-60, L210-60	1
6.	21225F-3/16	Looper Gauge	1
-	21225F-5/32	Looper Gauge	1
-	21225-11/64	Looper Gauge	1
7.	21388Y	Spanner Wrench	1
8.	21227CG	Synchronizing Gauge, for looper and needle timing, complete	1
9.	21227CK	Synchronizing Gauge Rod	1
10.	21227CJ	Looper Clamp and Height Gauge	1
11.	22738	Screw	1
12.	22703A	Screw	1
13.	21227CH	Needle Setting Block	1
14.	14087	Thumbscrew	1
15.	1347A	Nut	1
16.	TT85	Wrench, for 3/16" square nut on screw	1
17.	21227BV	Looper Avoid Gauge	1
18.	21227CV	Cover Thread Hook Gauge	1
*19.	23279D	Folder Threader	1
*20.	753	Adjustable Axle Cone	1
*21.	188D	Screw, for adjustable axle cone	1
*22.	51292F-8	Spring, for tape holder disc	1
*23.	21178	Tape Holder Disc	2
*24.	88	Screw, for collar	1
*25.	161	Collar	1
*26.	21114W	Tape Reel Axle	1
*27.	258A	Nut, for tape reel axle	1
*28.	21171Z	Tape Reel Frame	1
*29.	22729A	Screw, for tape reel frame	2
*30.	21171AA	Tape Guide	1
*31.	23401P-7/16	Tape Folder	1
*32.	357	Screw, for tape folder	2
*33.	28	Screw, for tape guide	1
*34.	36279E	Frame Chip Guard	1
*35.	22777B	Screw, for Frame Chip Guard	1
*36.	36279B	Spring, for Frame Chip Guard	1
*37.	36279A	Washer, for Frame Chip Guard	1
38.	21227FD	Needle Bar Torque Tool	1
39.	GR-51899	Threading Wire	1
*40.	29476YN	Sewing Guard Assembly	1
*41.	36283M	Mounting Bracket	1
*42.	9937	Nut	1
*43.	PS0200062KH	Pin	1
*44.	36296C	Sewing Guard	1
*45.	WZ0641510KP	Spring Washer	2
*46.	22758E	Screw	1

*Indicates tape holder parts for Styles 36200T300-52, 36200T300-60



THREAD LUBRICATOR

Ref. No.	Part No.	Description	Amt. Req.
1.	29480AZY	Needle Thread Lubricator Complete	1
2.	35893J	Reservoir Cover	1
3.	666-339	Reservoir Wick	1
4.	22585C	Screw	2
5.	660-219AX	Pin	1
6.	50358M	Eyelet	8
7.	22894BL	Shoulder Screw	2
8.	35893K	Reservoir	1
-	28604W	Bottle of Silicone (not shown)	1

NUMERICAL INDEX OF PARTS

Part No.	Page No.	Part No.	Page No.	Part No.	Page No.	Part No.	Page No.	Part No.	Page No.
109	35	22571A	49	22849	49, 51	35846	43	36223	31
1096	31, 53	22571B	31	22881A	37	35846B	43	36223A	31
1096	55, 57	22572B	47	22894AM	33	35850F	51	36224H	49
1096B	45, 47	22574	33	22894BK	35	35851L	47	36224K	49
11550209	31	22578H	41	22894BL	65	35851P	43	36225A	41
12865	47	22580	31	22894E	33	35851S	43	36226A	41
12934A	27, 45	22585	45	22894J	31, 35	35862A	33	36226B	41
1347A	63	22585A	31, 35	22894K	31	35866	43	36226H	41
14087	63	22585A	47	22894P	51	35866A	29	36226J	41
150	53, 55, 57	22585B	39	22894W	31, 33	33566B	29, 35	36226K	41
15037A	47	22585C	39	22894W	41, 43	35876U	49	36229A-1	49
161	63	22585C	49, 65	22894X	45	35883AL	29	36229H	37
18	41, 43, 47	22587B	33	22924708	27	35883G	51	36230AH	57
188D	63	22587E	31, 41	22931208	35	35887AE	27	36230AJ	57
21101W6	61	22587E	43	22KH	27, 49	35887M	27	36230AL	57
21114W	63	22587H	41	23279D	63	35887R	27	36230AP	57
21171AA	63	22596	49, 51	23401P-7/16	63	35887X	27	36230AR	57
21171Z	63	22596B	33	23420CZ	49	35887Z	29	36230AS	57
21178	63	22596D	29	23420DE	49	35888N	27	36230C	53, 55
21225-11/64	63	22651CD-5	61	23420DJ	49	35890E	29	36230D	53, 55
21225F-3/16	63	22652A-6	47	23423X	49	35890P	27	36230D	57
21225F-5/32	63	22653B-8	39	23423AE	49	35893G	27	36230G	55
21227BU	63	22653E-24	49	23424Z	49	35893H	27	36230J	55
21227BV	63	22703A	63	255	35	35893J	65	36230M	53
21227CG	63	22711	27	258	43	35893K	65	36230P	53
21227CH	63	22716A	49, 53	258A	35, 47, 63	35894L	31	36230R	53
21227CJ	63	22716A	57	269	41, 43, 47	35895W	31	36230S	53
21227CK	63	22729A	63	28	37, 63	35895Y	33	36230U	55
21227CM	63	22729C	41, 43	28604R	61	35896D	39	36231AK	53
21227CN	63	22729C	47	28604W	65	35897BV	31	36231AM	53
21227CS	63	22729M	45	28A	37	35897BW	31	36231AP	53
21227CV	63	22731	53, 55, 57	28C	29, 39	35897BY	33	36231AY	55
21227DS	63	22733B	29	29101J	31, 43	36203	49	36231BA	55
21227FD	63	22733G	43	29103T	31, 41	36204	27	36231BG	57
21233KS	61	22738	63	29105BH	29	36204A	27	36232AK	53
21388AZ	63	22738B	49	29472AC	31	36205A	41	36232AM	53
21388Y	63	22738C	37	29472AG	31	36205B	41	36232AP	53
21756G	31	22738G	53, 55	29476XC	27	36205H	41	36232AY	55
22-331	57	22738G	57	29476YN	63	36205J	41	36232BA	55
22504C	43	22738H	39	29476YP	39	36205M	41	36232BG	57
22513	37	22738P	53, 55	29478CS	41	36205N	41	36233	35
22516A	27	22738P	57	29478CT	43	36208A	47	36234C	41
22517	35	22747	41, 47	29478CU	47	36210	47	36234E	41
22519	35	22758E	39, 63	29478CZ	51	36215	33	36234F	41
22519F	31	22759A	27	29480AZY	65	36217A	37	36234G	41
22524	37, 39	22766	33, 51	318	39	36218A52	39	36234N	41
22528	41	22767A	45	33174B	41	36218A60	39	36236	43
22539AA	27	22768B	29	357	63	36220A	55	36236A	43
22539AL	51	22777B	37, 63	35751G	47	36220AE	57	36236B	43
22539M	27	22781G	41	35761D	29	36220AF	57	36236C	43
22539T	29	22784F	35	35763F	33	36220B	55	36236E	41
22560A	39, 51	22791E	51	35763G	33	36220E	53	36236F	41
22562A	49, 53	22795B	47	35766B	43	36220H	53	36236G	41
22562A	55, 57	22797	33	35767	37	36220K	55	36236H	41, 43
22564	33	22798	49	35768C	51	36220M	53	36236J	43
22564B	27, 29	22799N	45	35781D	29	36220V	53	36236K	43
22564D	47	22801	31, 49	35792	35	36220W	53	36237	43
22565A	31, 53	22829	29	35792T	35	36221N	33	36237A	43
22565A	55, 57	22839	27	35816	33	36221P	33	36237E	51
22569B	27	22839D	35	35836C	43	36222A	33	36237J	51
22569G	45	22845M	41	35842J	43	36222C	31	36237K	51

NUMERICAL INDEX OF PARTS

Part No.	Page No.	Part No.	Page No.	Part No.	Page No.	Part No.	Page No.	Part No.	Page No.
36237L	51	36260C	29	36280T	35	36297J	31	660-935	27
36237M	39	36261	45	36280U	35	36297N	31	661-150	51
36238	51	36261A	31	36280V	35	36298G	35	664F-16	39
36238F	51	36263	33	36280W	35	36298H	35	666-214	33
36240	49	36264B	37	36280X	35	39145A	47	666-338	31
36240J	49	36264D	33	36282	51	39543N	47	666-339	65
36244	41	36264E	37	36283B	49	39592AK	35	666-340A	39
36244A	41	36264F	37	36283C	49	39593C	27	667D-16	49
36245B	47	36266	35	36283E	49	40-107	49	671B3	31
36245D	45	36266A	35	36283F	49	41071J	51	73A	27, 29, 49
36245E	45	36270C	45	36283G	49	41071G	27, 31	73C	27
36245F	45	36271	29	36283H	49	41255B	41, 47	753	63
36245H	45	36271A	29	36283J	49	421D38	45	77	33, 43, 47
36245J	45	36271E	29	36283K	51	43246	43	8372A	37, 39
36245K	45	36271G	29	36283M	63	4761	47	86	35
36247	33	36271H	29	36283P	39	50311C	33	87A	51
36248	47	36273A	45	36283R	35	50358M	65	88	47, 63
36249	47	36273C	45	36283S	35	50393-140	31	90	27, 31
36249A	51	36273D	45	36283T	35	50393-260	33	92201	29
36249B	47	36273G	45	36284C	51	50393CS	33	93	27, 35
36250	53, 55, 57	36273J	45	36284E	49	50393KM	33	93A	27
36250K	53, 55	36273K	45	36284F	51	51235G	45	94	53, 55, 57
36250L	53, 55	36273P	45	36284M	27	51259	37	97A	47
36250M	53, 55	36273Q	45	36284Q	51	51292F-2	35	98A	49
36250K	57	36273R	37	36284R	51	51292F-4	35	9937	39, 63
36250L	57	36273S	37	36284S	29	51292F-5	35	998-358E	27
36250M	57	36273T	37	36284T	27	51292F-8	63	999-196	51
36251AE	45	36273U	45	36284Z	49	52336	47	C36224A	49
36251AC	53, 55	36275	45	36286	51	52841H	45	C36224J	49
36251AC	57	36275A	45	36289	37	52958C	27	C36224N	49
36251AD	53, 55	36275B	45	36289A	39	52958F	27	C36224P	49
36251AD	57	36278	37	36289B	37	531	49, 51	C36224Q	49
36251B	45	36278A	37	36289H	37	53636C	47	C50092S	35
36251C	45	36278C	47	36289J	39	53678N	35	CO67E	27
36251E	53, 55	36278F	39	36289K	27	538	51	CQ200000000	41
36251E	57	36278J	45	36290B	29	604	47	CQ200000000	45
36251FE	53	36278K	37	36290E	39	6042A	27, 39, 43	GR-36245G	45
36251E	53, 55	36278L	39	36290G	29	605A	45	GR-36284	49
36251E	57	36278M	39	36290M	27	61321J	33	GR-51899	63
36251H	53, 55	36278P	37	36292K	35	61321L	33	J87J	51
36251H	57	36278R	39	36292M	35	62238A	41, 43	LA528	27
36251J	53, 55	36278S	37	36292N	35	62271B	29	PS0200062KH	63
36251J	57	36278T	39	36292Q	35	660-1019	45	SS7090910TP	35
36251K	49, 53	36278U	39	36293B	27	660-1115	51	SS7110510SP	29
36251K	55, 57	36279A	63	36293E	27	660-1117	51	SS7110840SP	35
36251L	53, 55	36279B	63	36293G	51	660-1130	39	SS7111120TP	33
36251L	57	36279C	53, 55	36293K	31	660-1131	39	SQ1110401MZ	33
36251M	33	36279P	57	36293L	31	660-1132	29	TT85	63
36251N	33	36279D	53, 55	36293M	31	660-1146	27	W56392F	35
36251V	45	36279D	57	36293N	29	660-206	29	WZ0641510KP	39
36251W	53, 55	36279E	63	36293P	33	660-207	31, 43	WZ0641510KP	63
36251W	57	36279H	55	36293Q	33	660-212	27		
36253A	47	36279L	37	36293R	33	660-215	47		
36253B	47	36279M	37	36293S	33	660-219AX	65		
36253G	47	36279N	37	36293T	31	660-219D	45		
36254A	33	36280A	35	36294E	39	660-219P	31		
36254B	33	36280C	35	36294F	37	660-220	41, 51		
36256	27	36280D	35	36294G	31	660-221	47		
36256A	27	36280J	37	36296A	49	660-254C	35		
36256B	51	36280N	35	36296B	49	660-264	35		
36260B	29	36280S	35	36296C	63	660-739	37		



Union Special®
INDUSTRIAL SEWING EQUIPMENT