



Union Special
INDUSTRIAL SEWING EQUIPMENT

**SECOND
EDITION**

CATALOG NO. 142M

STYLES

XF511B100MF	XF511H112MG
XF511E101MF	XF511H115MF
XF511E118MF	XF512E100HB
XF511E152MF	XF512E100MP
XF511H100MF	XF513E100HJ
XF511H100MG	XF513E100HR
XF511H100MAW	XF513E101HR
XF511H112MF	XF513E112HR

**Maximum performance XF500
Series flatbed machines**



FORWARD

This technical manual has been prepared to guide you in the maintenance of your new UNION SPECIAL MACHINE. Careful attention to the instructions for operating and adjusting these machines will enable you to maintain the superior performance and reliability designed and built into every UNION SPECIAL machine.

The Adjusting Instruction portion of this manual explains in detail the proper setting for each of the components related to forming the stitch and completing the functions of the machine. Figures are used to illustrate the adjustments using reference letters to point out specific items discussed.

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

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

CATALOG NO. 142M

**SECOND EDITION
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INFORMATION SUBJECT TO CHANGE WITHOUT NOTICE

Each UNION SPECIAL machine is identified by a Style number, which on this machine Class, is stamped into the Style plate affixed to the right front of machine. Serial number is stamped into bed casting at the right rear base of machine.

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

STYLES OF MACHINES

High speed, maximum performance, long arm flatbed, double locked stitch, plain feed machine. Totally enclosed feed and looper drive mechanism, fully automatic forced feed lubricating system with easily replaceable oil filter, independently driven rear needle guard, adjustable feed lift, quick adjustable looper avoid and built-in needle cooler.

XF511B100MF Single needle, MEDIUM capacity, wrench adjustable stitch change, thumbscrew adjustable needle frame eyelet, low inertia presser foot, permitting light presser foot pressure for positive feeding and chaining at high speeds; for long seams on light to medium weight fabrics such as trousers, skirts, coats, jackets, etc. Standard recommended needle Type 128 GBS, Size 90/036. Stitch range 7-10 S.P.I. Maximum recommended speed 8000 R.P.M., depending on operation.

XF511E101MF Single needle, MEDIUM capacity, quick stitch change mechanism, thumbscrew adjustable needle frame eyelet, low inertia presser foot permitting light presser foot pressure for positive feeding and chaining at high speeds. Equipped with a Close-Coupled Roller Puller, for long flat seams on medium weight fabrics such as trousers, coats, and perma-press materials. Standard recommended needle Type 128 GBS, Size 90/036. Stitch range 7-10 S.P.I. Maximum recommended speed 7500 R.P.M., depending on operation.

XF511E118MF Same as Style XF511E101MF except-equipped with Belt Puller.

XF511E152MF Same as Style XF511E118MF except-equipped with Power "AIR-KLIPP"® Chain Cutter.

XF511H100MF Same as Style XF511B100MF except-equipped with built-in oil cooler and quick stitch change mechanism. Maximum recommended speed 9000 R.P.M., depending on operation. Stitch range 7-10 S.P.I.

XF511H100MG Same as Style XF511H100MF except used for side and inseaming on men's work and dress pants made from medium weight material. Stitch range 10-14 S.P.I.

XF511H100MAW Same as Style XF511H100MF except-equipped with narrow feeding presser foot parts for a 3/16 inch (4.8mm) margin. Stitch range 7-10 S.P.I. Maximum recommended speed 8000 R.P.M., depending on operation.

XF511H112MF Same as Style XF511H100MF except-equipped with Power "AIR-KLIPP" Chain Cutter.

XF511H112MG Same as Style XF511H100MG except-equipped with Power "AIR-KLIPP" Chain Cutter.

STYLES OF MACHINES (Continued)

- XF511H151MF Same as Style XF511H100MF except-equipped with Power "AIR-KLIPP" Chain Cutter and pneumatic stitch shortening device.
- XF512E100HB Two needle, HIGH capacity, for seaming trousers and similar garments made of medium heavy to heavy weight material. Right needle in front. Standard recommended needle Type 128 GBS, Size 100/040. Available in 7 S.P.I. ONLY. Standard gauge No. 1 ONLY. The seam produced has two rows of stitching with the strength of 14 S.P.I., yet the fabric is moved forward at a rate of 7 S.P.I. Maximum recommended speed 6500 R.P.M., depending on operation.
- XF512E100MP Two needle, MEDIUM capacity, quick stitch change mechanism, for piecing sleeves, joining shoulders and setting sleeves on ordinary quality shirts made with light to medium weight materials. Includes double lap seam folder 1/16 inch (1.6mm) capacity. Standard recommended needle Type 108 GHS, Size 70/027. Stitch range 9-14 S.P.I. Standard gauge Nos. 12 and 16. Maximum recommended speed 6500 R.P.M., depending on operation.
- XF513E100HJ Three needle, HIGH capacity, quick stitch change mechanism, for seaming wind breakers, mackinaws, lumber jacks and for similar operations on medium heavy to heavy weight material. Equipped with tractor type presser foot, Includes double lap seam folder 3/32 inch (2.4mm) capacity. Standard recommended needle Type 128 GAS, Size 125/049. Stitch range 7-10 S.P.I. Standard gauge Nos. 8 and 9. Maximum recommended speed 6500 R.P.M., depending on operation.
- XF513E100HR Three needle, HIGH capacity, quick stitch change mechanism, for seaming sanforized denim and similar operations on medium to heavy weight materials. Includes double lap seam folder 1/8 inch (3.2mm) capacity. Standard recommended needle Type 128 GAS, 125/049. Stitch range 7-10 S.P.I. Standard gauge No. 9 ONLY. Maximum recommended speed 6500 R.P.M., depending on operation.
- XF513E101HR Same as Style XF513E100HR except-equipped with a Close-Coupled Roller Puller.
- XF513E112HR Same as Style XF513E100HR except-equipped with Power "AIR-KLIPP" Chain Cutter.

®"AIR-KLIPP" is a registered trademark of Union Special Corporation.

SAFETY RULES



CAUTION!

THIS SAFETY SYMBOL INDICATES YOUR PERSONAL SAFETY IS INVOLVED

TO PREVENT PERSONAL INJURY:

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

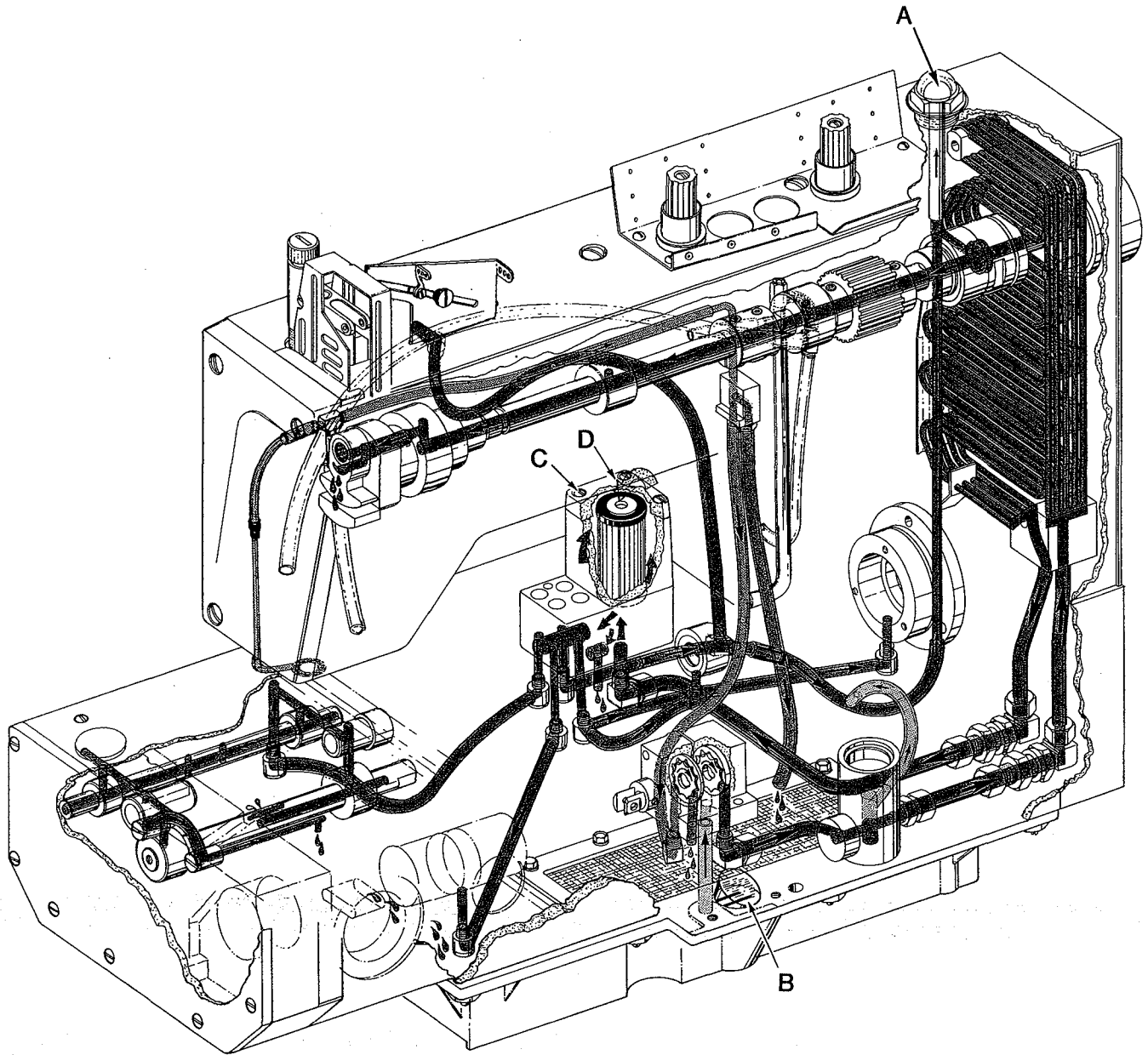
LUBRICATION

IMPORTANT: Machine must be in a leveled position.

Oil has been drained from main reservoir before shipment. Use a straight mineral oil with a Saybolt viscosity of 90 to 125 seconds at 100 degrees Fahrenheit. This is equivalent to UNION SPECIAL Specification No. 175. Remove oil filler cap (A, Fig. 1) and fill to TOP line of oil level gauge (B). Replace oil filler cap.

CAUTION! On new machines, machines that have been out of service for an extended period of time OR machines that have been drained of oil and refilled... run machine slowly at 300 R.P.M. for approximately five minutes while paying strict attention to the oil flow indicator which should rise in the oil filler cap (A) and remain steady while machine is running. This must be noted to ensure that oil flow indicator is functioning and oil is circulating. Run machine and recheck oil level which **MUST** be maintained between the red lines of oil gauge.

To maintain maximum recommended speed and serviceability of these machines, refer to General Preventive Maintenance Schedule. Under no circumstances, should oil remain in the machine for more than one year. Two oil drain plugs are located in bottom of oil pan. **ALWAYS** replace oil filter when oil is changed. To replace filter remove four screws (C, Fig. 1), cover (D) and lift out filter, **REMOVE** (brass) **BY-PASS VALVE FROM TOP OF OLD FILTER AND INSTALL IN NEW FILTER.** Reassemble in reverse manner.









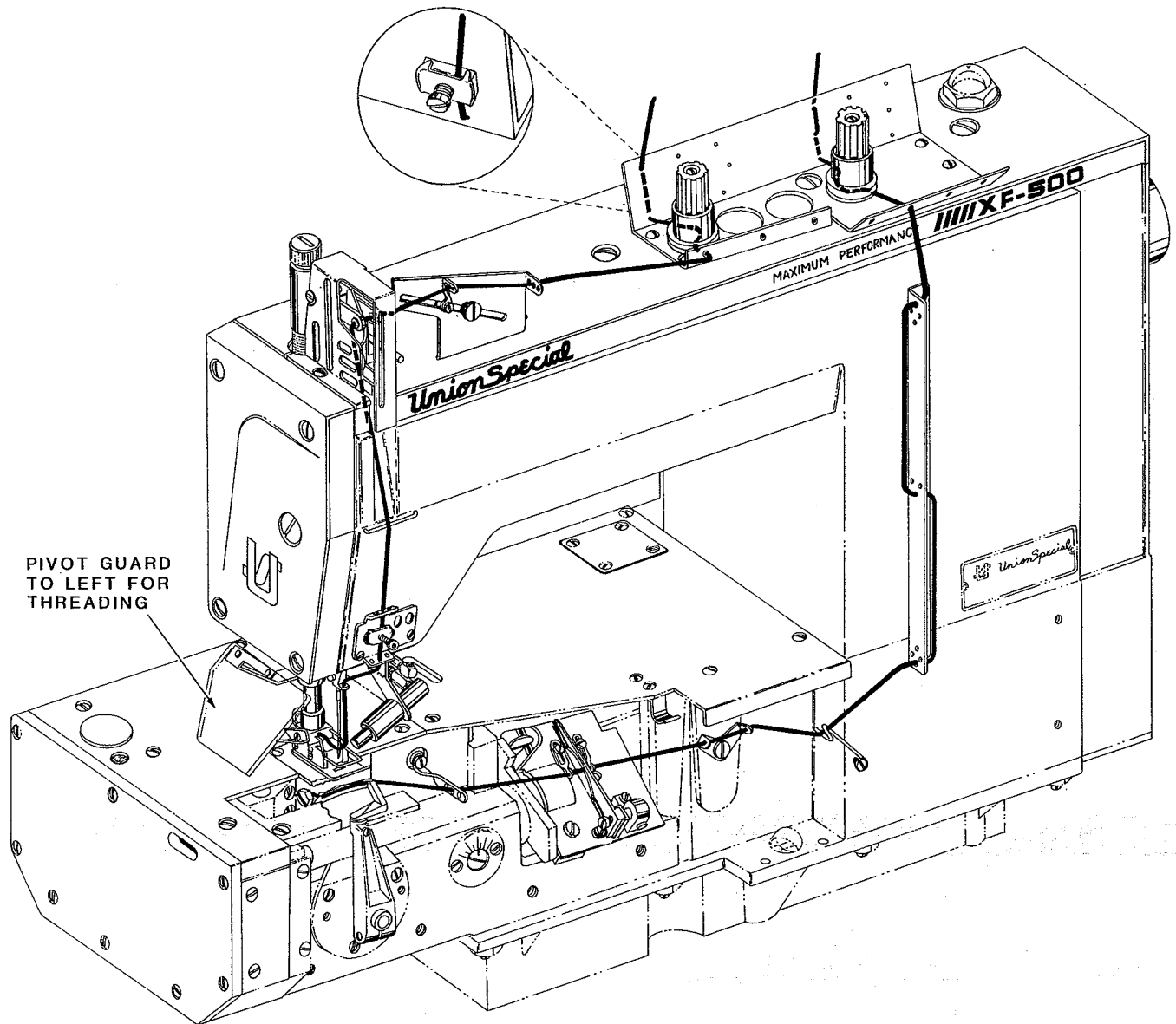
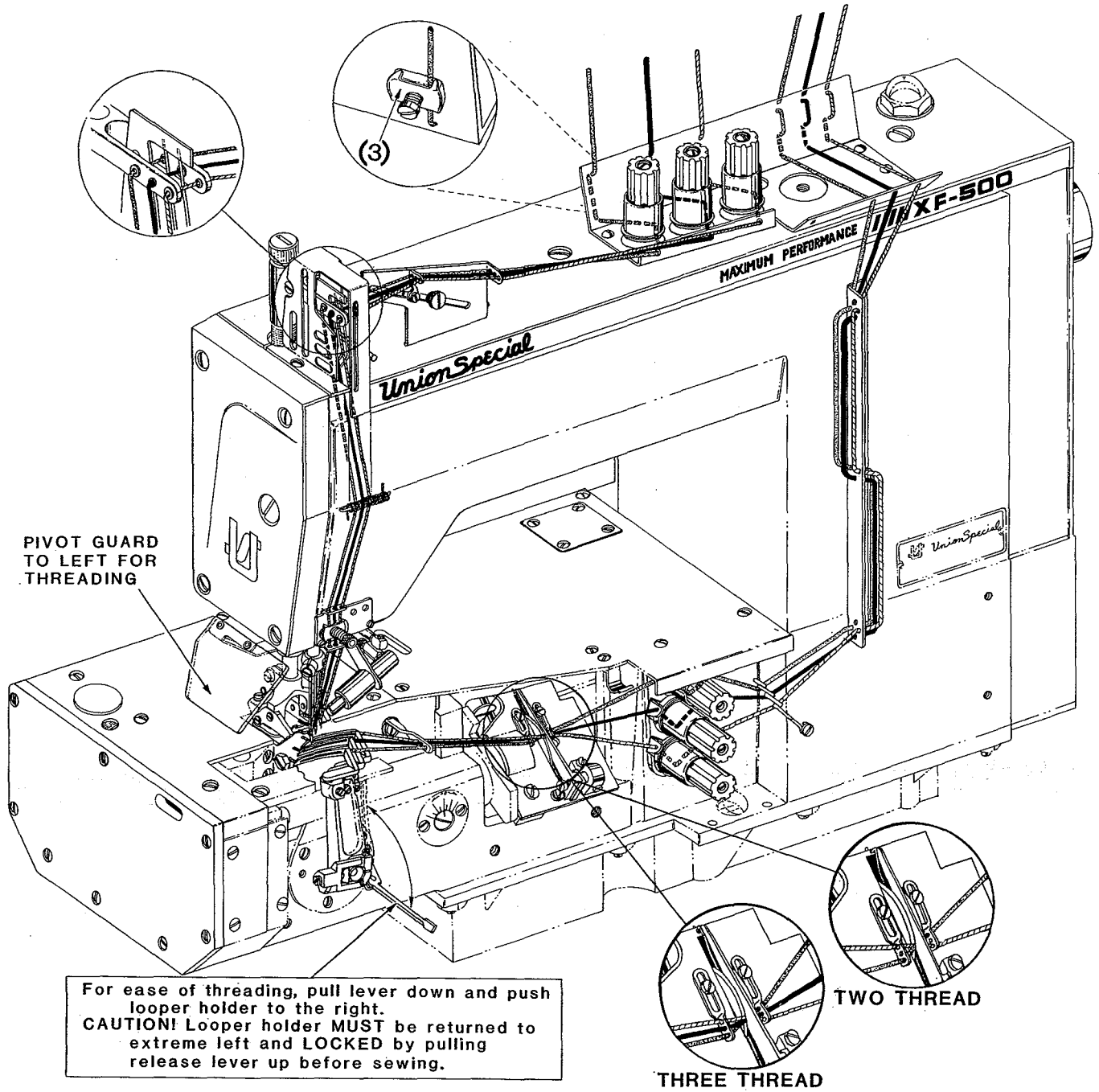
- | | | | |
|---|---------------------|---|--------------------------------|
|  | PRESSURE OIL |  | SIPHON RETURN |
|  | RETURN OIL |  | PRIORITY VALVE PRESSURE |
|  | INLET |  | FILTER BY-PASS |

Fig. 1



A205

THREADING DIAGRAM



A206

THREADING DIAGRAM

NEEDLES

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

The type numbers of the needles recommended for each Style of machine covered by this catalog are given in the machine style description. Other needles are available, but the ones indicated are those recommended to produce the most satisfactory results. The type numbers of the recommended needles together with their descriptions, and the sizes available are listed below:

<u>NEEDLE TYPE</u>	<u>DESCRIPTION</u>	<u>SIZES AVAILABLE</u>
108 GHS	Round shank, ball point, double groove, struck groove, ball eye, spotted, chromium plated.	70/027, 75/029, 80/032, 90/036, 125/049.
128 GAS	Round shank, round point, short, double groove, struck groove, ball eye, spotted, chromium plated.	80/032, 90/036, 100/040, 110/044, 125/049, 140/054, 150/060, 170/067.
128 GBS	Round shank, round point, short, double groove, struck groove, ball eye, spotted, ball point, chromium plated.	80/032, 90/036, 100/040, 110/044, 125/049, 140/054, 150/060.

To have needle orders promptly and accurately filled, an empty package, a sample needle, or the type and size number should be forwarded. Use description on label. A complete order would read "1000 needles, Type 128 GBS, Size 90/036".

The following instructions explain in detail the proper setting for each of the components related to forming the stitch and completing the functions of the machine.

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

NOTE: On earlier styles, machines equipped with a DURACOAT ALUMINUM needle bar; TORQUE needle bar connection screw, 10 to 12 in-lbs. (11.5 to 13.8 cm/kg).

On later styles, machines equipped with a DURACOAT MASKED ALUMINUM needle bar; TORQUE needle bar connection screw, 16 to 18 in-lbs. (18.4 to 20.7 cm/kg).

THREAD MACHINE AS ILLUSTRATED.

TIMING FEED TO NEEDLE

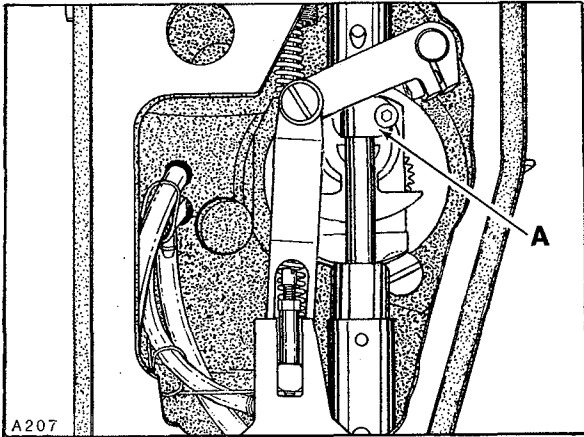


Fig. 2

Adjustment would be required if machine is feeding while the needle or needles are in the work.

To adjust; remove top cover, head cover and all other plates, supports and covers as required to provide accessibility to the feed mechanism chamber. Turn handwheel in operating direction to position needle bar connection (A, Fig. 2) at TOP of stroke.

Loosen four screws (A, Fig. 3) in upper mainshaft sprocket (B) and hold handwheel so upper mainshaft and needle bar cannot move. While holding handwheel firmly, turn lower mainshaft to position feed crank counterweight (A, Fig. 4) with its FLATS perpendicular to the bottom of machine and facing away from the operator, as viewed in Figure 4. TORQUE screws (A, Fig. 3) to 36 in-lbs (41 cm/kg).

NOTE: Whenever "TIMING FEED TO NEEDLE" is corrected, always check "SYNCHRONIZING LOOPER AND NEEDLE MOTIONS."

SYNCHRONIZING LOOPER AND NEEDLE MOTIONS

Looper drive belt (A, Fig. 5) has proper tension if, when turning handwheel in operating direction to position looper in the center of its (right to left) travel... there is no noticeable (right to left) play in the looper mechanism.

There should be approximately 1/8 inch (3.2mm) deflection in looper drive belt when pressing firmly with thumb, midway between sprockets (B and C). Adjustment can be made by loosening two screws (D) and turn looper module (E) clockwise (as viewed from handwheel end of machine) to tighten belt tension or counterclockwise to loosen belt tension.

It is easier to rotate looper module by turning cast-off plate mounting bracket (F). At this time, notch (G) on end of looper module should be facing in the upward position (between 9 and 3 o'clock). Loosen binder screw (H) and reposition cast-off plate mounting bracket (F) so its leading edge (J) is vertical to and parallel with bed casting. Retighten screw (H) assuring that the right side of mounting bracket is flush with right side of looper module. Retighten screws (D).

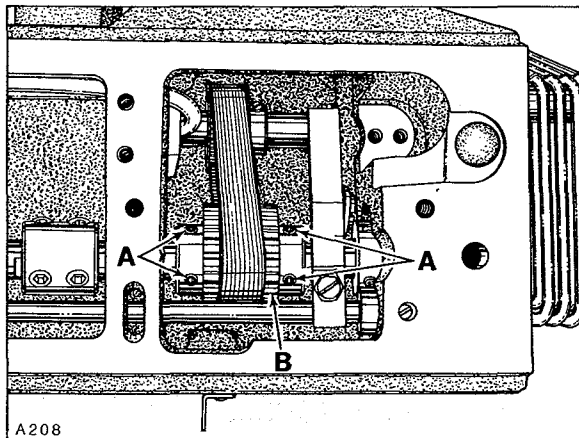


Fig. 3

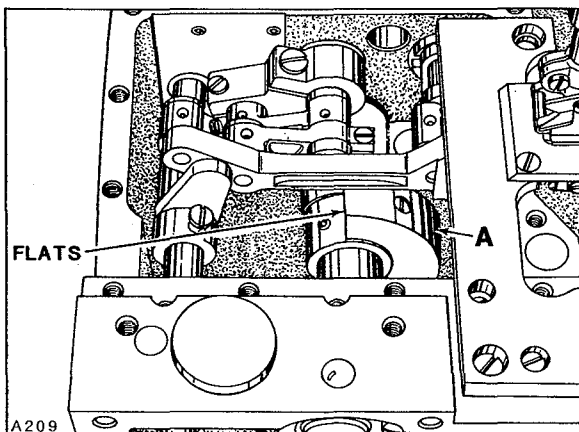


Fig. 4

SYNCHRONIZING LOOPER AND NEEDLE MOTIONS
(Continued)

To synchronize machine, remove needle bar eyelet guard, needle thread take-up cam wire, needle/s, presser foot, throat plate, looper/s, and feed dog. Turn handwheel to position needle bar at **BOTTOM** of stroke and looper holder at **EXTREME** right end of travel.

Using gauge No. 21227 R, mount gauge plate with throat plate attaching screws. Insert pin (included with gauge) into looper holder. Mount indicator block to machine head with one of the screws removed from needle bar eyelet guard. Insert shank of indicator gauge into indicator block tighten screw against shank, (See Sketch A for reference).

NOTE: For Style XF512's and XF513's use 21227 AD mounting plate.

Rotate handwheel in **OPERATING** direction until the pin in looper holder contacts gauge plate. Loosen screw (A, Fig. 6) in needle bar connection (B) and position needle bar (C) as required to set the pointer of indicator gauge at "0" and tighten screw (A) **VERY LIGHTLY**.

IMPORTANT: Refer to NOTE, page 9 for proper **TORQUE** of screw.

Rotate handwheel in **REVERSE** direction until pin in looper holder again makes contact with gauge plate and note the reading on the gauge. A variation of (1) graduation on the scale is permissible. If the reading is above "0", loosen screws (K, Fig. 5) while holding sprocket (B), turn handwheel clockwise. If the reading is below "0", hold sprocket, turn handwheel counterclockwise. Temporarily snug screws.

Rotate handwheel in **OPERATING** direction until pin in looper holder contacts gauge plate and note the reading on scale. If the reading is above "0", loosen screws (K) while holding sprocket (B), turn handwheel counterclockwise. If the reading is below "0", hold sprocket and turn handwheel clockwise. Temporarily snug screws.

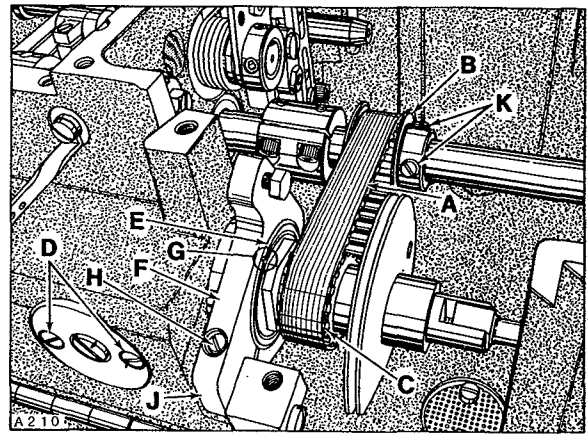
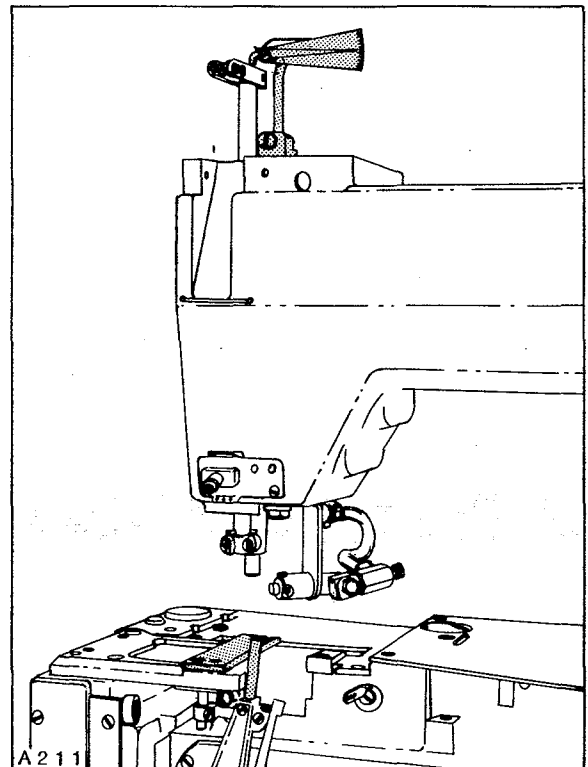


Fig. 5



SKETCH A

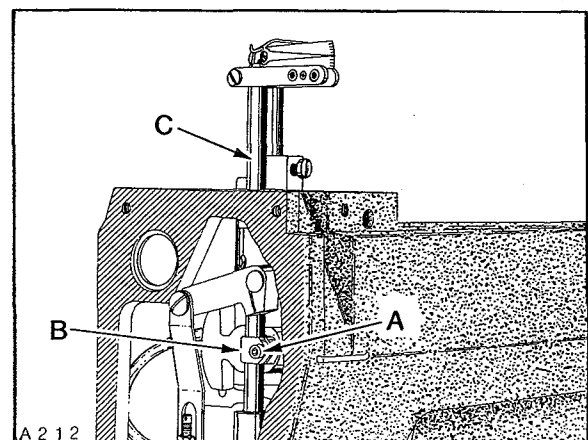
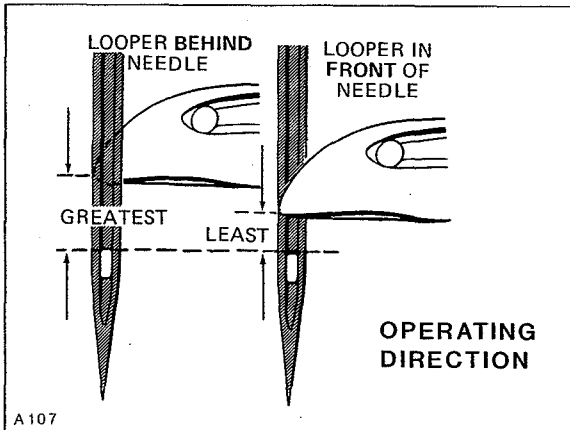


Fig. 6

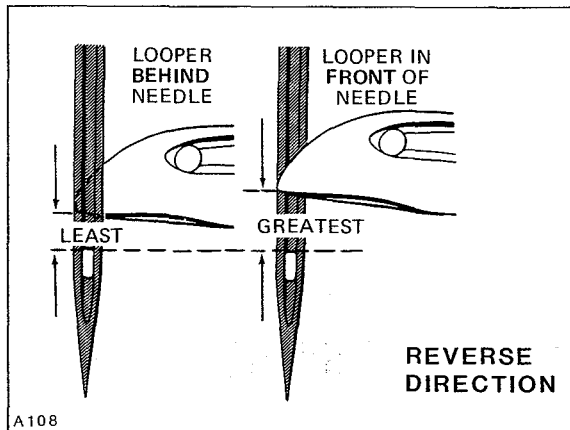
SYNCHRONIZING LOOPER AND NEEDLE MOTIONS (Continued)



SKETCH B

Continue to check and adjust in both OPERATING and REVERSE directions until pointer of indicator gauge comes within (1) graduation on the scale when turning the handwheel in either direction and tighten screws (K) securely, assuring that drive belt is centered on sprockets.

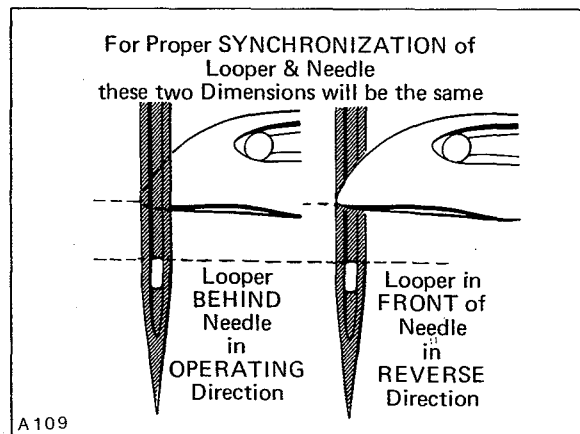
If a synchronizing gauge is not available... turn the handwheel in operating direction to position looper point even with the left side of RIGHT needle and check the distance from the eye of needle to the bottom of looper blade.



SKETCH C

Turn handwheel in reverse direction to position looper even with the left side of RIGHT needle and check the distance from the eye of needle to the bottom of looper blade. If the distance was greater when handwheel was turned in operating direction, as viewed in Sketch B, loosen screws (K, Fig. 5) while holding sprocket (B), turn handwheel counterclockwise. If the distance was greater when handwheel was turned in reverse direction, as viewed in Sketch C, hold sprocket and turn handwheel clockwise.

Temporarily snug screws. Continue to check and adjust in both OPERATING and REVERSE directions until the distance from the eye of the RIGHT needle to the bottom of looper blade is the same in either direction, as viewed in Sketch D. Before tightening screws (K, Fig. 5) securely, be sure to have the drive belt centered on sprockets.



SKETCH D

NEEDLE BAR ALIGNMENT (For Two and Three Needle Styles)

Insert a new set of needles. As a temporary setting, the TOP of needle bar (A, Fig. 7) should be approximately 1 7/8 inches (47.6mm) from the TOP of upper needle bar bushing when needle bar connection (B) is positioned at TOP of STROKE as shown in Figure 7.

NEEDLE BAR ALIGNMENT (Continued) (For Two and Three Needle Styles)

Adjustment can be made by loosening screw (C), reposition needle bar up or down as required and tighten screw (C) VERY LIGHTLY.

IMPORTANT: Refer to NOTE, page 9 for proper TORQUE of screw.

Rotate handwheel to ensure that needles center in the needle holes of throat plate as shown in Figure 8. Adjustment can be made by loosening screw (C, Fig. 7) slightly, allowing needle bar to be rotated as required, while being careful to maintain the temporary height setting and tighten screw (C) AS SPECIFIED. An additional 4-way directional adjustment of the throat plate can be accomplished as follows:

IMPORTANT: Adjustment of throat plate must be coordinated between needles and feed dog; refer to "FEED DOG SETTINGS". Loosen three screws (A, Fig. 8) in throat plate support (B). Loosen two screws (C) which secure locating ferrules, allowing the throat plate support to be repositioned slightly. Tighten screws (C) first, then screws (A).

CAUTION! Needle bar has a special coating. DO NOT wedge or pry with any type of tool, as damage to needle bar may result. Should needle head require assembling to needle bar, TORQUE 14-16 in-lbs (16-18 cm/kg).

LOOPER SETTING (For Single Needle Styles)

Insert a new needle, type and size specified. With looper positioned at EXTREME right end of travel, distance from centerline of needle to point of looper should be $5/32$ inch (4.0mm). Adjustment can be made by loosening screw (A, Fig. 9) and turn screw (B) clockwise to increase looper gauge or counterclockwise to decrease. Apply pressure to the upper portion of looper holder (C) to the left while making this adjustment and locking with screw (A).

Looper gauge No. 21225-5/32 can be used advantageously while making this adjustment.

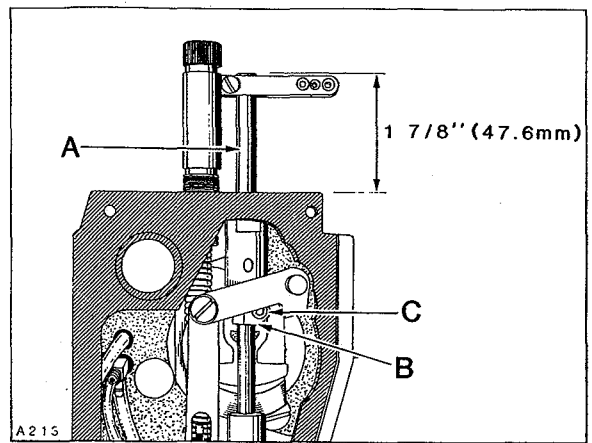


Fig. 7

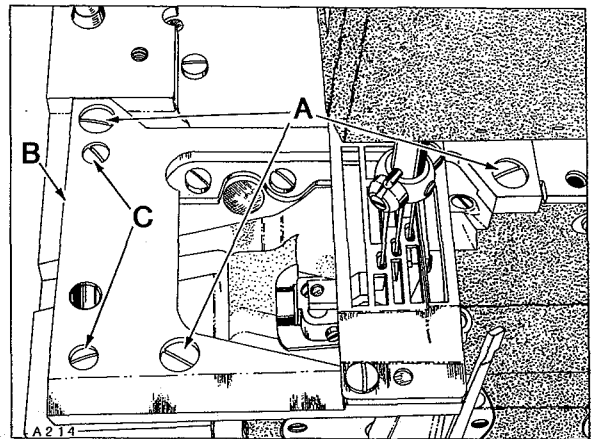


Fig. 8

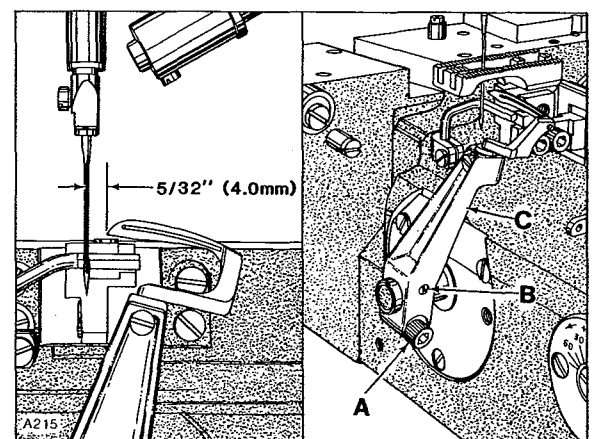


Fig. 9

LOOPER SETTING (Continued)
(For Single Needle Styles)

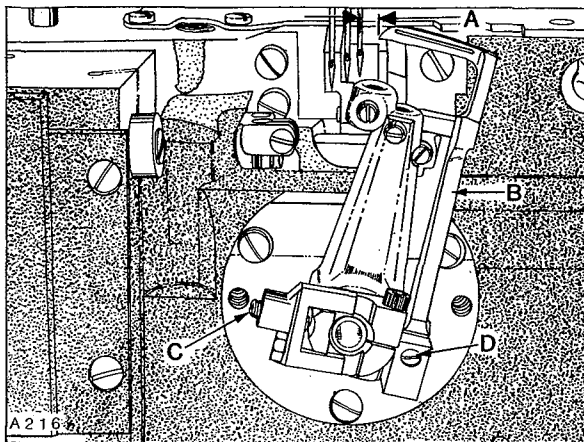


Fig. 10

Looper must also be set so, as it travels to the left behind the needle, NOT to touch, but with a MAXIMUM clearance of .002 inch (.051mm). Adjustment can be made by loosening screw (A) and moving looper holder (C) forward or rearward on its shaft to obtain specified conditions; apply pressure to the upper portion of looper holder to the left while tightening screw (A).

LOOPER SETTING
(For Two and Three Needle Styles)

If not previously done, insert a new set of needles; type and size specified. With looper holder at EXTREME right end of travel, distance from centerline of RIGHT needle to point of RIGHT looper should be dimension (A, Fig. 10); see chart. Adjustment can be made by pulling release lever (B) down and loosening screw (A, Fig. 11) in stop collar (B). Apply pressure against the upper portion of looper holder (C) to the LEFT while turning screw (D) in looper holder clockwise to increase looper gauge or counterclockwise to decrease. Applicable looper gauge can be used advantageously in making this adjustment.

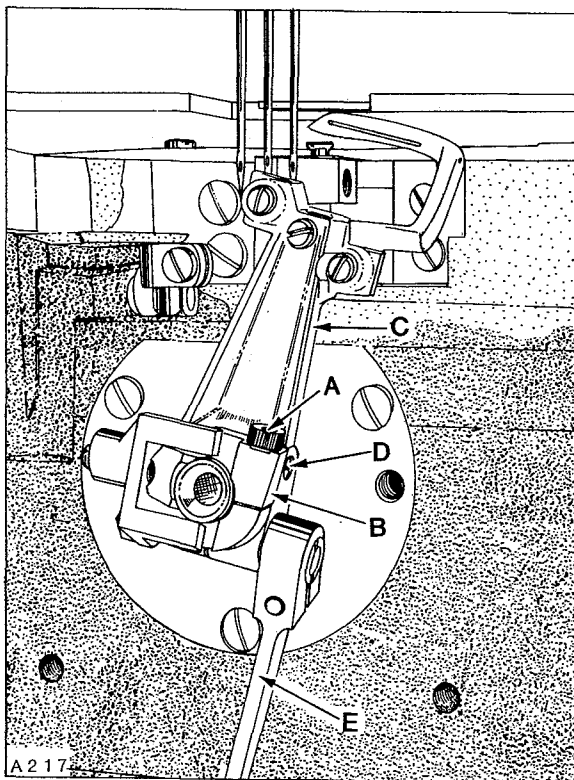


Fig. 11

Continue to apply pressure against upper portion of looper to the LEFT while turning stop collar (B) to its EXTREME CLOCKWISE position and tighten screw (A) securely. Push up release lever (E) to lock looper holder in position. Adjust screw (C, Fig. 10) which incorporates a spring plunger, against the recess in cam of stop collar as required to attain the following conditions:

Pull release lever down and be able to push looper holder to the right, with a snapping motion (making loopers easily accessible for threading). Push looper holder to the left, with a snapping motion. Apply pressure against upper portion of looper holder to the LEFT and push release lever up to lock looper holder in operating position.

In locked position, the release lever should be approximately in line with middle looper as viewed from the right side of looper holder. Adjustment can be made by loosening screw (D, Fig. 10), reposition release lever as required and retighten screw.

LOOPER SETTING (Continued)
(For Two and Three Needle Styles)

Loopers must also be set so, as they travel to the left behind the needles, NOT to touch, but with a **MAXIMUM** clearance of .002 inch (.051mm). Adjustment can be made by pulling release lever down, loosening screw (A, Fig. 11) in stop collar (B) allowing looper holder to be moved forward or rearward on its shaft, as required. Apply pressure against upper portion of looper holder to the **LEFT** while turning stop collar (B) to its **EXTREME CLOCKWISE** position and tighten screw (A) securely and push release lever up in locking position. **RECHECK** looper gauge.

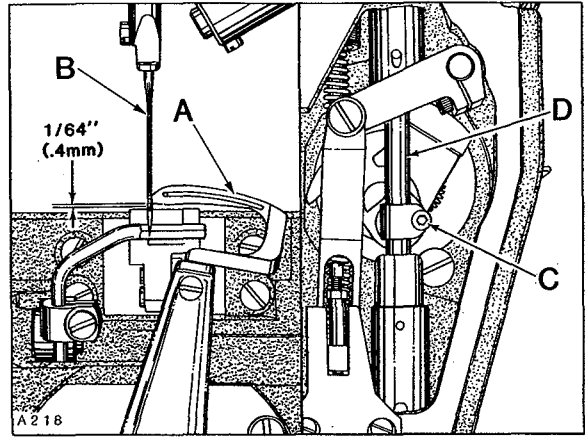


Fig. 12

<u>MACHINE STYLE</u>	<u>DIMENSION A FIG. 10</u>	<u>LOOPER GAUGE NO.</u>
XF512E100HB-1	5/32 inch (4.0mm)	21225-5/32
XF512E100MP-12	1/8 inch (3.2mm)	21225-1/8
XF512E100MP-16	1/8 inch (3.2mm)	21225-1/8
XF513E100HJ-8	5/32 inch (4.0mm)	21225-5/32
XF513E100HJ-9	5/32 inch (4.0mm)	21225-5/32
XF513E100HR-9	5/32 inch (4.0mm)	21225-5/32
XF513E101HR-9	5/32 inch (4.0mm)	21225-5/32
XF513E112HR-9	5/32 inch (4.0mm)	21225-5/32

NEEDLE BAR HEIGHT

Turn handwheel in operating direction until **POINT** of looper (A, Fig. 12) is even with the **LEFT** side of needle (B). **TOP** of needle eye should be 1/64 inch (.4mm) below the under surface of looper blade, as shown in Figure 12. Adjustment can be made by loosening screw (C) and move needle bar (D) up or down as required.

IMPORTANT: Refer to NOTE, page 9 for proper **TORQUE** of screw.

NOTE: Needle bar has special coating. **DO NOT** wedge with any type of tool, as damage to needle bar may result.

IMPORTANT! Care must be taken not to disturb **ALIGNMENT** of needle bar while making this adjustment.

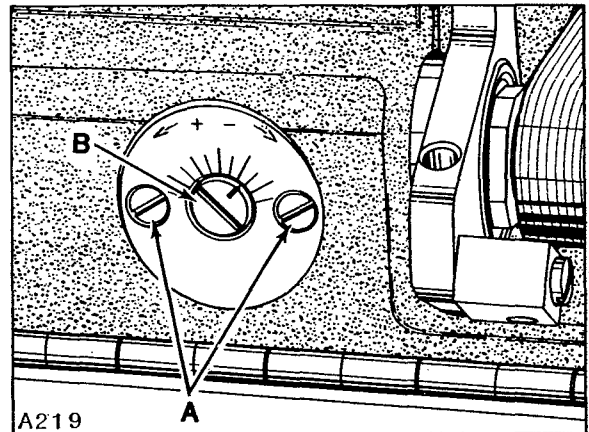


Fig. 13

LOOPER AVOID

Machine is equipped with a quick adjustable looper avoid mechanism to accommodate extreme differences in needle sizes. As the looper travels from left to right with the needle bar descending, the needle point/s should contact **ONLY** the lower **THIRD** of the back of

LOOPER AVOID (Continued)

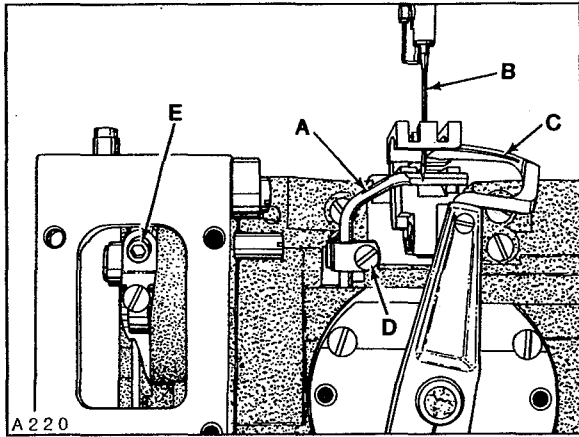


Fig. 14

Looper blade/s. Adjustment can be made by loosening two screws (A, Fig. 13) and turn eccentric stud (B) towards the plus side (counterclockwise) for MORE looper avoid or towards the minus side (clockwise) for LESS. When properly set, tighten screws (A).

NOTE: Whenever looper avoid is changed, ALWAYS recheck "LOOPER SETTINGS".

REAR NEEDLE GUARD

At extreme forward end of travel, rear needle guard (A, Fig. 14) must be set horizontally not to contact needle/s (B) with a maximum clearance of .002 inch (.051mm).

Guard should be set as low as possible, yet have its vertical face approach approximately 3/64 inch (1.2mm) of needle point until point of looper (C) moving to the left, is even with the right side of needle. Adjustment can be made by loosening screw (D), reposition needle guard as required and retighten screw. If additional front to rear adjustment is required to maintain needle guard in a horizontal position, loosen screw (E) in pivot link which allows needle guard shaft to be rotated. Be sure to take up thrust by exerting pressure against needle guard holder to the left and pivot link to the right, while tightening screw (E).

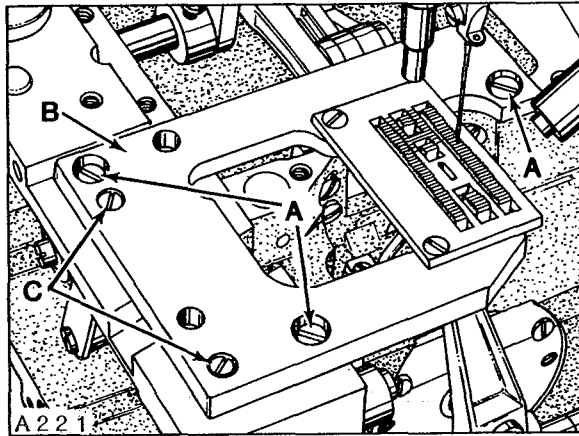


Fig. 15

NOTE: Change in stitch length WILL NOT require change in needle guard setting, but a change of needle size may.

FEED DOG SETTINGS

Feed dog should be centered in throat plate with equal clearance on both sides and ends. At highest point of travel, feed dog teeth should extend the depth of a tooth or approximately 3/64 inch (1.2mm) above throat plate. MINOR (right to left) adjustments can be made by loosening three screws (A, Fig. 15) in throat plate support (B). Loosen two screws (C) which secure two locating ferrules used to align throat plate support. Reposition slightly as required considering both needle hole slot/s and feed dog slots. Tighten screws (C) first, then screws (A).

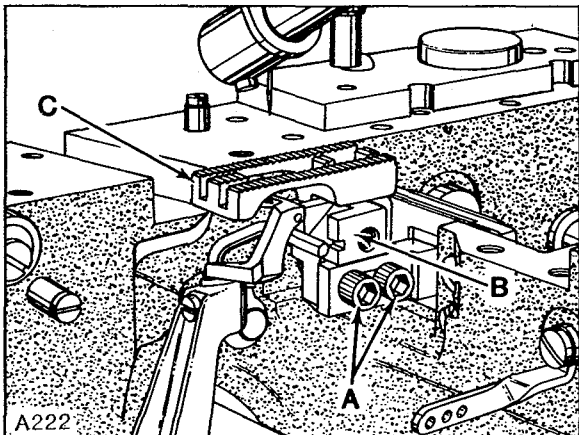


Fig. 16

FEED DOG SETTINGS (Continued)

Front to rear adjustments can be made by loosening two screws (A, Fig. 16), reposition feed dog holder (B) as required. Press down on front of feed dog (C) while tightening screws (A). Feed dog can be leveled or tilted by removing throat plate, loosen two screws (A, Fig. 16) and screw (A, Fig. 17) so feed dog (B) can be raised enough to loosen locking screw (C).

Turn feed tilting cam (A, Fig. 18) as required to level feed dog as it comes out of throat plate. Retighten screw (C, Fig. 17) and screws (A, Fig. 16) while pressing down on front end of feed dog. Adjust feed dog height supporting screw (B, Fig. 18) to support feed dog after specified feed dog height has been determined by checking with feed dog and throat plate in place. When adjustments are completed, tighten screw (A, Fig. 17) while pressing down in front of feed dog. More or less FEED LIFT can be acquired by loosening screw (A, Fig. 19) and turning adjusting dial (B) towards the operator to increase feed lift. Turning away from operator decreases. Retighten screw (A). Turn handwheel in operating direction to ensure that feed dog does not strike throat plate or looper/s, throughout its path of travel.

CHANGING STITCH LENGTH (All Styles except XF511B100MF)

Stitch length can be changed by pressing down and turning stitch length regulating knob (A, Fig. 20) clockwise to shorten or counterclockwise to lengthen the stitch. Recheck front to rear clearances in throat plate as described under "FEED DOG SETTINGS" whenever stitch length is changed. Bottom limit stop (B) should be set by screw (C) to prevent regulating knob (A) from accidentally being turned beyond the desired maximum stitch length.

CHANGING STITCH LENGTH (For Style XF511B100MF)

Stitch length can be changed by loosening screw (A, Fig. 21) which is accessible through a slot in the right cloth plate (1/8 inch Allen wrench required). When moved towards the rear lengthens the stitch; moving

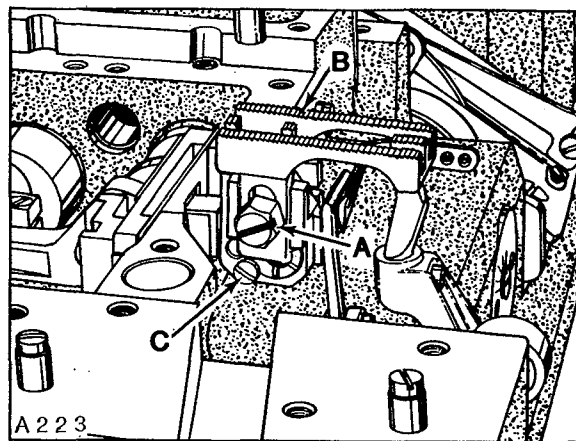


Fig. 17

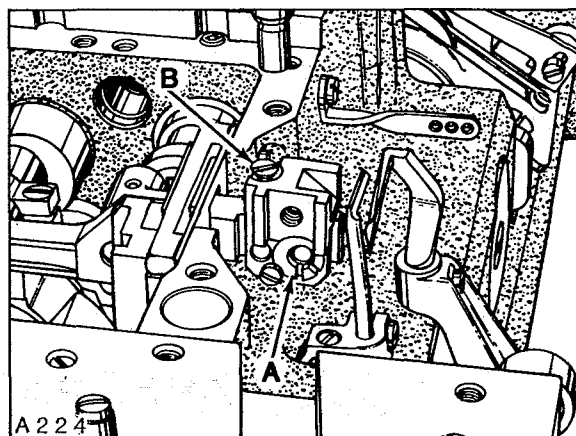


Fig. 18

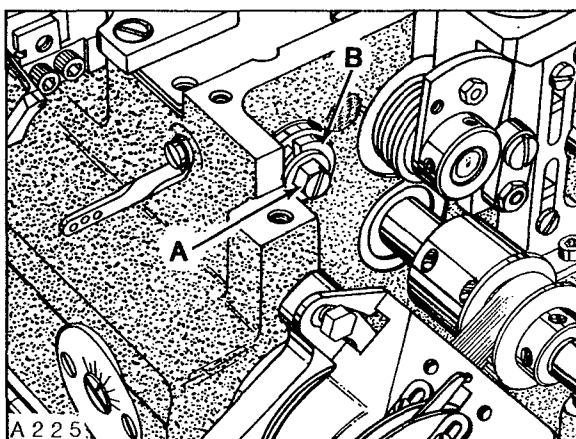


Fig. 19

CHANGING STITCH LENGTH (Continued)
(For Style XF511B100MF)

towards the front acts the reverse. Recheck front to rear clearances in throat plate as described under "FEED DOG SETTINGS" whenever stitch length is changed. Tighten screw (A) securely.

LOW INERTIA PRESSER FOOT
(For Styles XF511B100MF, XF511E101MF, 118MF,
152MF, XF511H100MF, 100MG, 112MF,
112MG and 151MF)

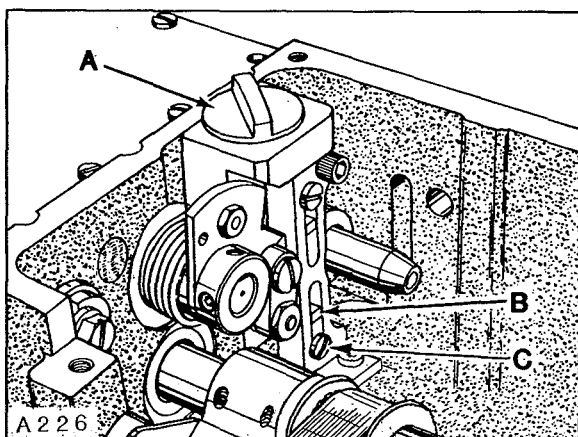


Fig. 20

With needle bar at bottom of stroke and presser foot resting on throat plate, there should be 1/32 inch (.8mm) clearance between top of screw and top of slot in presser foot as viewed in Figure 22. There should be 1/16 inch (1.6mm) clearance between bottom of slot in lifter lever link (A) and bottom of presser bar guide (B) when foot lifter lever is released. If adjustment is required, loosen nut (C) and turn screw (D) down approximately 1/8 inch (3.2mm) below bottom surface of presser bar guide (B). Back off presser spring regulating screw and loosen screws (E) in presser bar guide (B) so that presser foot rests squarely on throat plate and screw (D) is touching the bottom of presser bar guide plate, then retighten screws (E).

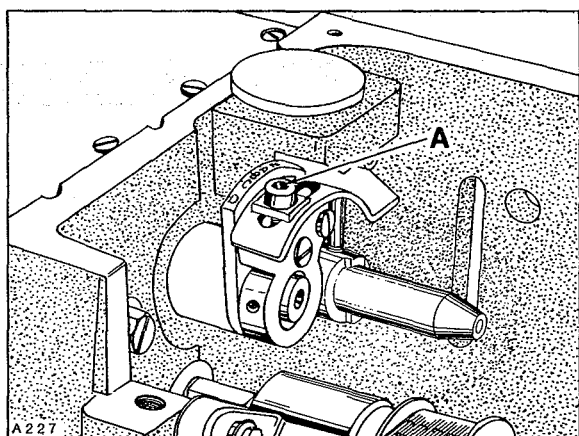


Fig. 21

Turn presser spring regulating screw all the way down, then back off screw (D) counterclockwise to obtain the 1/32 inch (.8mm) dimension in presser foot; lock nut (C). Loosen screw (F) in lifter arm (G) and rotate arm slightly as required to obtain the 1/16 inch (1.6mm) dimension between link (A) and guide (B); retighten screw (F) ensuring no left to right shake in lifter arm (G).

FEEDING PRESSER FOOT
(For Style XF511H100MAW)

With presser foot resting on throat plate, the distance from top of spring (A, Fig. 23) to top of yoke (B) should be 5/8 inch (15.9mm) and the line stamped across the presser foot bottom should line up with centerline of needle. As the presser foot is raised, its bottom should move VERY SLIGHTLY towards the rear... 1/64 inch (.4mm) maximum. If adjustment is required, proceed as follows:

FEEDING PRESSER FOOT (Continued)
(For Style XF511H100MAW)

Remove presser spring regulating screw, presser bar spring guide and presser bar spring. Loosen nut (C, Fig. 22) and turn screw (D) down approximately 1/8 inch (3.2mm) below bottom surface of presser bar guide (B). Loosen screws (E) in presser bar guide (B). Adjust spring regulator nut (C, Fig. 23) as required, so its lower surface is 5/8 inch (15.9mm) from top of yoke (B) as viewed in Figure 23. With presser foot resting on throat plate and feed dog down below throat plate, press down on spring regulator nut (C) until the marks in presser foot bottom align with centerline of needle and positioned to keep needle in center of needle slot. Tighten screws (E, Fig. 22) securing presser bar guide to presser bar, ensuring stop screw (D) in presser bar guide is resting on bottom of presser bar guide plate.

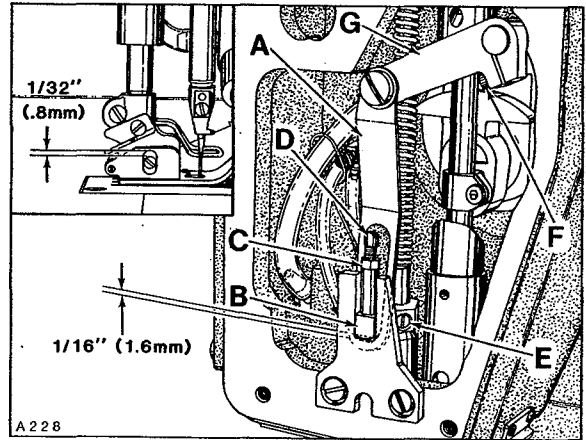


Fig. 22

Replace presser bar spring, spring guide and spring regulating screw. Turn regulating screw down until the top of its threaded portion is level with head casting. Rotate handwheel to position feed below throat plate with presser foot resting on throat plate. Depress presser foot lifter lever to see if presser foot bottom moves SLIGHTLY towards the rear before presser foot begins to lift. Adjustment can be made by turning stop screw (D, Fig. 23) clockwise to shorten or counterclockwise to lengthen the distance of travel.

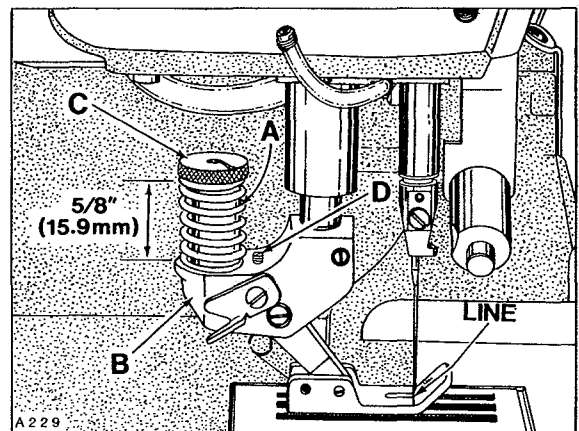


Fig. 23

Loosen screw (F, Fig. 22) in lifter arm (G) and rotate arm slightly as required to obtain 1/16 inch (1.6mm) clearance between link (A) and guide (B); retighten screw (F) ensuring no left to right shake in lifter arm (G).

Presser foot, at back of needle slot should cover most of throat plate land when resting directly on throat plate.

When presser foot bottom is raised by material and the feeding foot spring bottoms, rear of needle slot should clear the needle. Main presser bar should not begin to lift before the spring of feeding foot bottoms.

Purpose of the feeding presser foot is to make top and bottom plies of material feed the same amount without pulling on the bottom ply. Final adjustment may be required to match plies; turning nut (C, Fig. 23) to increase pressure on spring (A) will tend to feed the bottom ply more... decreasing pressure will tend to feed the top ply more.

PRESSER BAR AND PRESSER FOOT
 (For Styles XF512E100HB, MP,
 XF513E100HJ, 100HR, 101HR and 112HR)

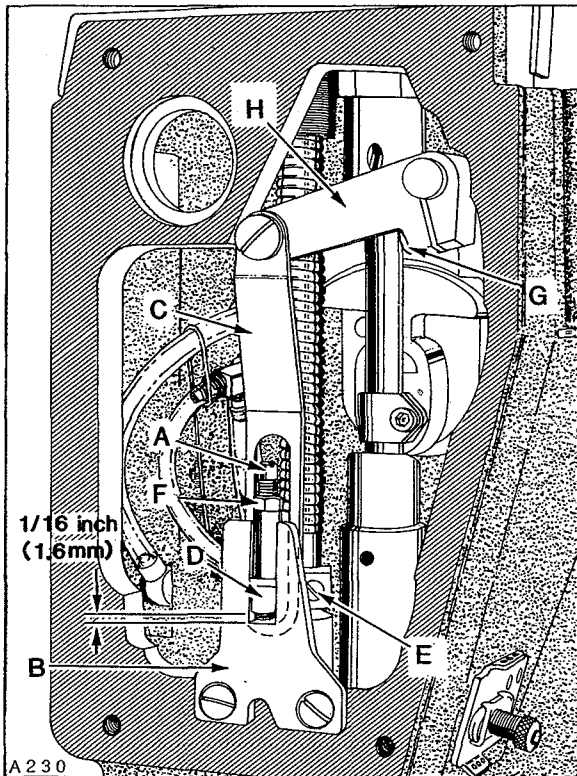


Fig. 24

With needle bar at bottom of stroke and presser foot resting squarely on throat plate, there should be a minimum clearance of 1/64 inch (.4mm) between the bottom of screw (A, Fig. 24) and bottom of slot in presser bar guide plate (B). At this time, there should be at LEAST 1/32 inch (.8mm) clearance between bottom of presser bar guide and top of lower presser bar bushing.

There should also be 1/16 inch (1.6mm) clearance between bottom of slot in lifter lever link (C) and bottom of presser bar guide (D) when foot lifter lever is released. If adjustment is required, proceed as follows:

Back off presser bar spring regulator to release tension on spring. Loosen two screws (E) in presser bar guide (D). Loosen nut (F) and turn screw (A) down against guide plate (B) to obtain at least 5/64 inch (2.0mm) clearance between bottom of presser bar guide (D) and guide plate (B). Align presser foot with needles and press down FIRMLY while tightening two screws (E) in presser bar guide (D).

NOTE: This setting was necessary to prevent damage to the scraper edge of presser bar bushing, should presser foot be removed from machine.

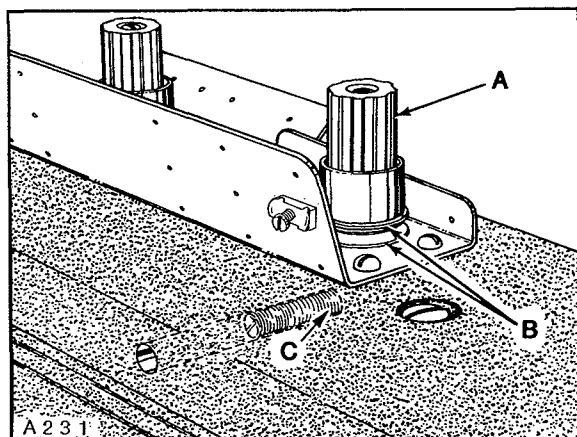


Fig. 25

Turn presser bar spring regulator down. Back off screw (A) to obtain the 1/64 inch (.4mm) dimension between bottom of screw and bottom of slot in presser bar guide plate (B), lock nut (F).

Loosen screw (G) in lifter arm (H) and rotate arm slightly as required to obtain the 1/16 inch (1.6mm) dimension between link (C) and guide (D), retighten screw (G) ensuring no left to right shake in lifter arm (H).

Adjust presser bar spring regulator so it exerts only enough pressure on presser foot to feed the work uniformly. Turning it clockwise increases the pressure, counterclockwise acts the reverse.

THREAD TENSION RELEASE

Needle thread tension assembly (A, Fig. 25) is set correctly when the tension discs (B) begin to release thread as the presser foot is raised to within 1/8 inch (3.2mm) from the end of its travel and completely released when presser foot has reached its highest position. Adjustment can be made by loosening screw (C) and lower the tension assembly (A) to advance the release action or raise tension assembly to retard the release action. Hold tension assembly in desired position while retightening screw (C).

Loosen lock nut (A, Fig. 26) and adjust screw (B) in presser foot lifter lever, allowing presser foot to be raised to its highest position without interfering with needle head. Lock nut (A) securely.

LOOPER THREAD TAKE-UP AND CAST-OFF PLATE

Looper thread take-up (A, Fig. 27) should be centered, left to right, in cast-off plate (B). As the needle bar is descending, the take-up should be in position to cast-off looper thread just as the tip of needle is even with the bottom of looper. Adjustment can be made by loosening two screws in take-up (through access hole in cast-off plate), reposition take-up as required and retighten screws. Set adjustable eyelets (C) 1/2 inch (12.7mm) below centerline of their mounting screws.

If cast-off wire is rubbing take-up, loosen screw (D), center the wire (E) and retighten screw. If retaining finger is rubbing take-up, loosen screw (F), center the finger (G) and retighten screw. If retaining finger is on an angle, loosen screw (H), turn retaining finger support (J) slightly as required and retighten screw. Height of cast-off plate is set correctly when the lowest point of take-up cam is even with the top surface of cast-off plate. Adjustment can be made by turning handwheel in operating direction to locate the lowest point of the take-up cam, loosen screw (K) and raise or lower cast-off plate to correct height; then tighten screw (K) securely.

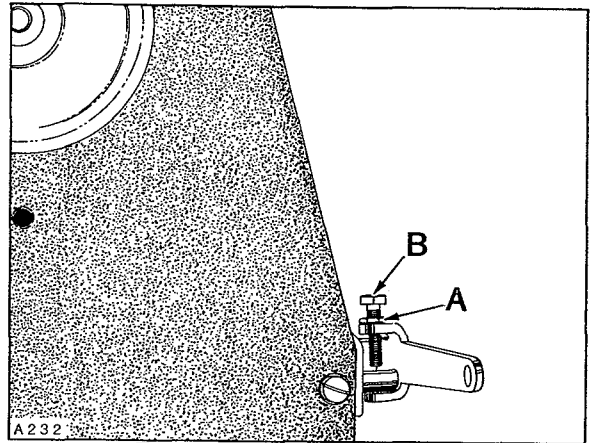


Fig. 26

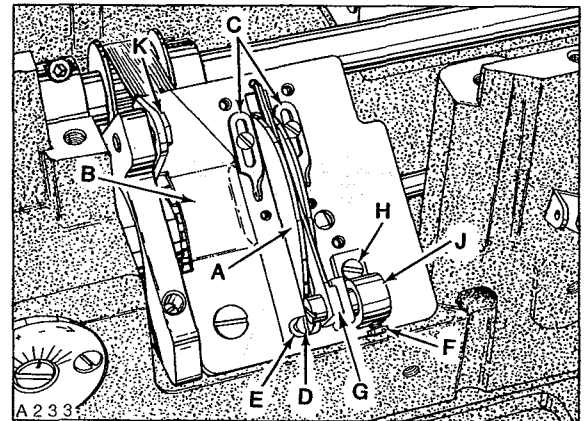


Fig. 27

THREAD CONTROL SETTINGS

(For Styles XF511B100MF, XF511E101MF, 118MF, 152MF, XF511H100MF, MG, MAW, 112MF, 112MG and 151MF)

Needle bar eyelet (A, Fig. 28) and needle thread cam (B) should be set in conjunction with each other so needle thread just contacts needle thread cam (B) at TOP and BOTTOM of stroke.

Adjustments can be made by bringing needle bar up, loosen screw (C) slightly, reposition eyelet (A) up or down as required. TORQUE screw (C) to 10 in-lbs. (11.5 cm/kg). Needle thread cam can be adjusted forward or rearward as required by loosening needle thread cam mounting screw (D) and retighten screw. Loosen screw (A, Fig. 29) and position strike-off wire (B) 1/2 inch (0.5mm) from top surface of top cover to underside of strike-off wire. With needle bar at BOTTOM of stroke and Thread Control Assembly adjustable eyelet (C) set at "T". Apply necessary tension to both needle and looper thread and start to sew. Looper thread tension should be light. Adjust needle thread tension to pull up smallest needle loop as required. At this point a tight stitch will be achieved. Without changing needle thread tension move Thread Control Assembly adjustable eyelet to "L". This will produce a loose seam with longer needle loops.

NOTE: Adjustment of strike-off wire can be raised to accommodate thick dense material.

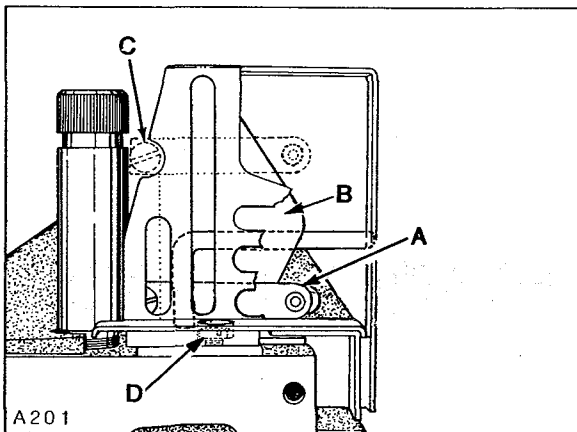


Fig. 28

THREAD CONTROL SETTINGS

(For Styles XF512E100HB, MP, XF513E100HJ HR, 101HR and 112HR)

Needle bar eyelet (A, Fig. 30) should be set with its eyelets 1/16 inch (1.6mm) below strike-off (B) on needle thread take-up cam wire (C) as shown in Figure 30, with needle bar at BOTTOM of stroke.

Adjustments can be made by bringing needle bar up, loosen screw (D) slightly, bring needle bar down to BOTTOM of stroke, reposition eyelet (A) as required and bring needle bar up. TORQUE screw (D) to 10 in-lbs. (11.5 cm/kg).

Needle thread take-up cam wire (C) should be set to barely contact needle threads with needle bar at top of stroke. Adjustment can be made by loosening cam mounting screw (E), reposition cam forward or rearward as required and retighten screw. Auxiliary strike-off (F) should be set so needle threads contact strike-off when needle bar is at BOTTOM of stroke with Thread Control Assembly adjustable eyelet (C, Fig. 29) set at "T". Loosen screw (A) and position strike-off (B) as specified and retighten screw. Thread tension on needle thread should be just enough to pull up uniform stitches. Thread tension applied on looper thread should be just enough to steady thread.

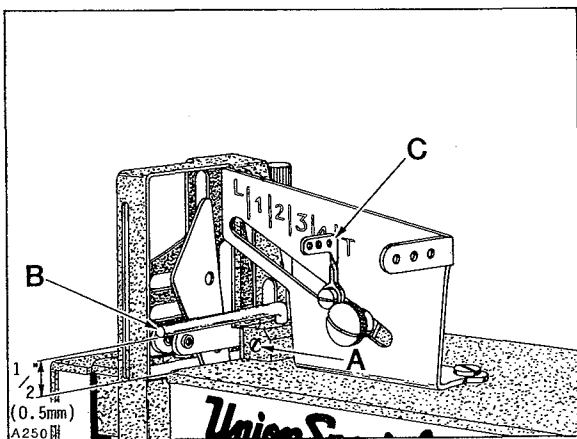


Fig. 29

POWER "AIR-KLIFF" CHAIN CUTTER ADJUSTMENTS

NOTE: References to Fig. 31 are as viewed from rear of machine; references to Fig. 32 are as viewed from left end of machine.

Upper knife (A, Fig. 31) can be replaced by removing two screws (B). In order to replace lower knife... the upper knife, rear cover and thread inlet must be removed. Lower knife (C) is held in position by roll pin (A, Fig. 32) and tension spring (D, Fig. 31). To remove lower knife, lift up and tilt to the right. When replacing lower knife, be sure to engage end of tension spring through the hole in the side of lower knife before inserting in the slide block (E). Also be sure that the slot in lower knife is located over roll pin.

SETTING KNIFE CROSS OVER

Adjustment will be necessary after replacing or repairing knives. With sewing motor switch in "OFF" position and air line connected to air motor, depress treadle until air motor begins to operate.

IMPORTANT! Be sure that lower knife does NOT strike against knife housing or feed chamber cover. Adjustment should be accomplished by loosening one screw (F, Fig. 31) and reposition left or right slightly.

Carefully press against slide block (E, Fig. 31) until air motor stalls.

With treadle still depressed, check the knife cross over. The cross over of the lower knife to the upper knife is positioned correctly, when the lower knife is 1/32 inch (.8mm) from the front of the upper knife as shown in Figure 31. If adjustment is required, loosen screw (F), reposition slide block (E) slightly as required. Retighten screw (F) and recheck cross over.

SHEAR ANGLE ADJUSTMENT

Shear angle should be .003 inch (.076mm), measured at rear cutting edge of lower knife (B, Fig. 32) and cutting edge of upper knife (D).

Adjustment can be made by turning lower knife adjusting screw (C, Fig. 32) counterclockwise (a small amount at a time) while manually

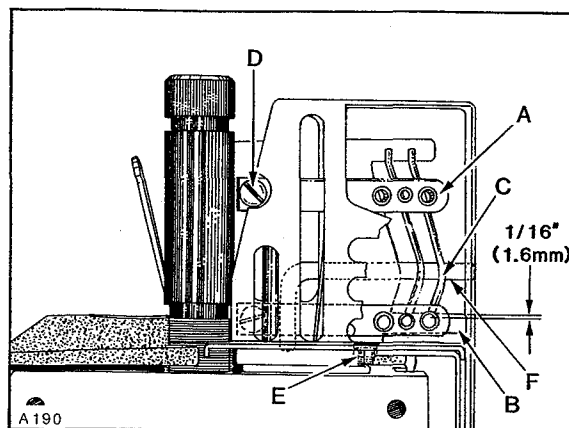


Fig. 30

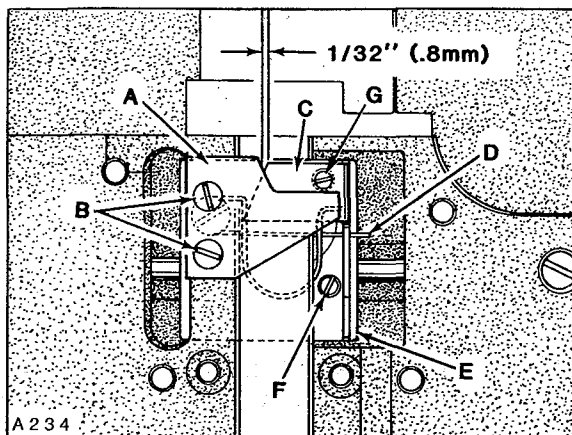


Fig. 31

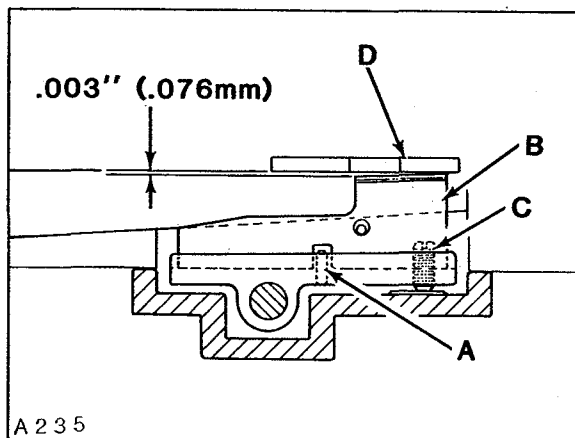


Fig. 32

SHEAR ANGLE ADJUSTMENT (Continued)

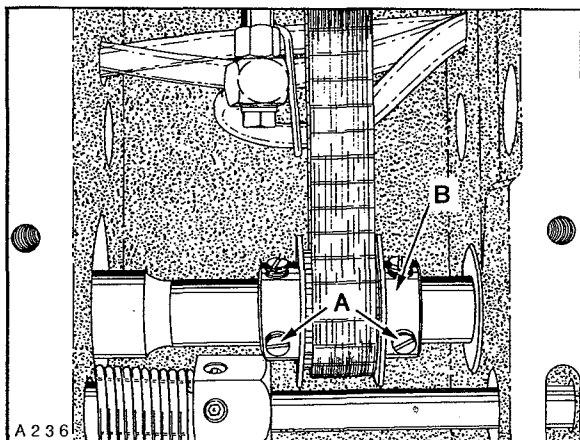


Fig. 33

operating slide block (E, Fig. 31) continuously checking with a piece of thread to see if knives are cutting. As soon as the knives fail to cut the thread and the shear angle is zero, turn screw (C, Fig. 32), same as (G, Fig. 31) clockwise approximately 1/4 turn. Check cutting action of knives with sewing motor switch "ON".

SETTING PRESSURE VALVES

Regulate valve on pneumatic control devices for air motor of the "AIR-KLIPP" Chain Cutter to approximately 20-22 p.s.i. (1.5 bar) when air motor is operating. Regulate valve on pneumatic control device for the suction air to obtain maximum suction, yet so that the FABRIC TO BE SEWN will not be cut by the "AIR-KLIPP" Chain Cutter knives.

PULLER TIMING

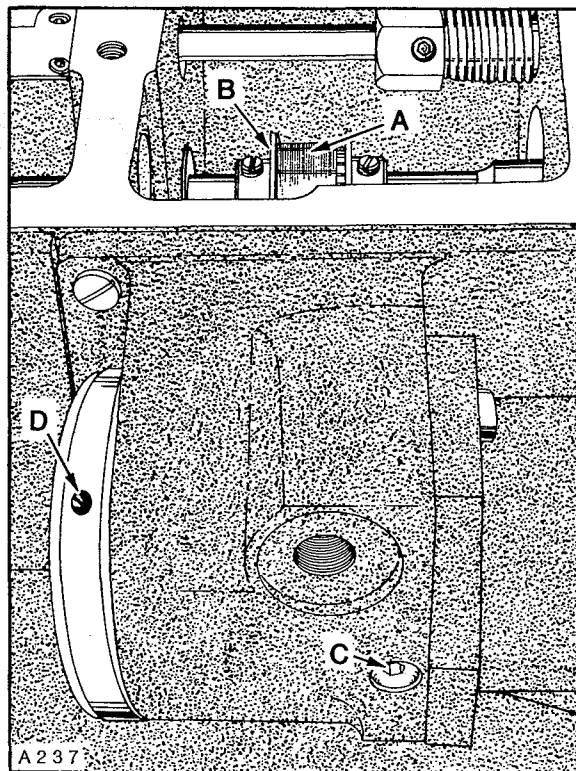


Fig. 34

The Close-Coupled Puller (BELT or ROLLER) must be timed so the intermittent feeding action stops before the needle/s is/are entering the work. NOTE: This will depend on the thickness of material and stitch length being sewn. If adjustment is required, remove top cover which is secured with four screws. Loosen four set screws (A, Fig. 33) in sprocket (B). Advance or retard sprocket on shaft as required. When proper timing is obtained, position sprocket on its shaft (left or right) so drive belt is centered in the puller drive assembly. Torque four screws (A) to 35 in-lbs (40 cm/kg).

There should be approximately 1/8 inch (3.2mm) deflection in puller drive belt (A, Fig. 34) when pressing firmly between sprocket (B) and puller drive assembly. Adjustment can be made by loosening one screw (C) securing eccentric (D) and rotate eccentric counterclockwise as viewed in Figure 34, to tighten belt, clockwise acts the reverse. Be sure to maintain .006-.010 inch (.150-.254mm) between eccentric and drive housing. Tighten screw (C) securely. Replace top cover and tighten four screws.

PULLER STITCH LENGTH

The feeding motion of the puller is achieved by two sprockets. By using various combinations of nine different sprockets, (59) different puller stitch lengths can be obtained. Refer to sprocket charts on Page 28 that list the various sprocket combinations. NOTE: Actual stitch length may vary slightly due to material being sewn. When ordering sprockets use the appropriate dash number. Example: C50042-Z-().

To change sprockets loosen two screws (A, Fig. 35) and position screws to top of bracket to release tension on stitch length drive belt. NOTE: Belt guard has been removed for clarity. With drive belt in relaxed position, sprocket (B and C) can be removed. When installing sprockets (B and C) make sure that hub of sprocket is flush with end of shaft and 1st screw in operating direction is on the flat of shaft. Reassemble drive belt, tighten 2nd screw in sprockets (B and C) securely. Rotate handwheel in operating direction to make sure belt does not bind within belt guard. It may be necessary to reposition sprockets (B and C) slightly (left or right). Pull down firmly on puller assembly, making sure puller roller is setting evenly on Idler Roller and tighten two screws (A) securely.

The roller puller belt, which is located under hinged belt guard (D) should have 1/8 inch (3.2mm) deflection when pressing firmly between drive sprockets. If adjustment is required loosen two allen screws (A, Fig. 36) and turn eccentric shaft (B) slightly to apply tension on belt. Turning shaft clockwise tightens belt counterclockwise acts the reverse. CAUTION! Care must be taken not to disturb eccentric shaft (left or right). Tighten two screws (A) securely.

Belt Puller (A, Fig. 37) must be setting evenly on cloth plate (B). On Style XF511E152MF Belt Puller will rest on "AIR-KLIPP" inlet.

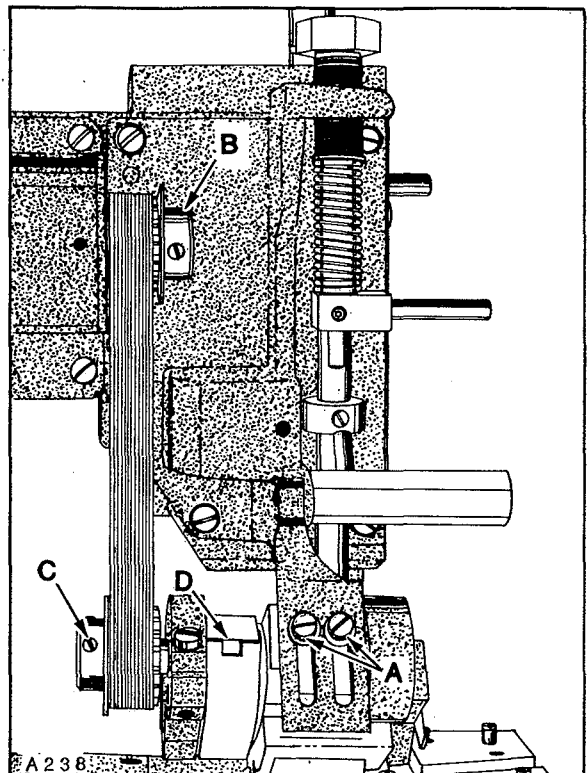


Fig. 35

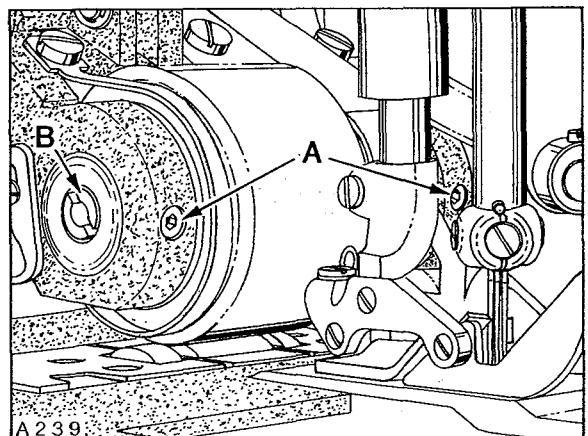


Fig. 36

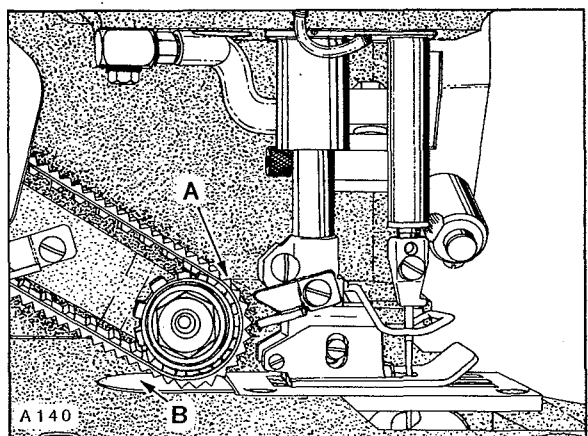


Fig. 37

PULLER STITCH LENGTH (Continued)

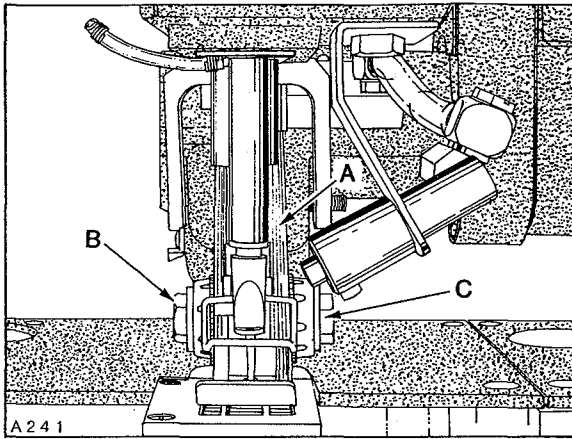


Fig. 38

Belt puller drive belt (A, Fig. 38) should have approximately 1/8 inch (3.2mm) deflection when pressing firmly between drive sprockets. If adjustment is required hold lock nut (B) and loosen lock nut (C). Turn nut (B) to apply tension. Hold nut (B) firmly and tighten nut (C) securely.

IDLER ROLLER

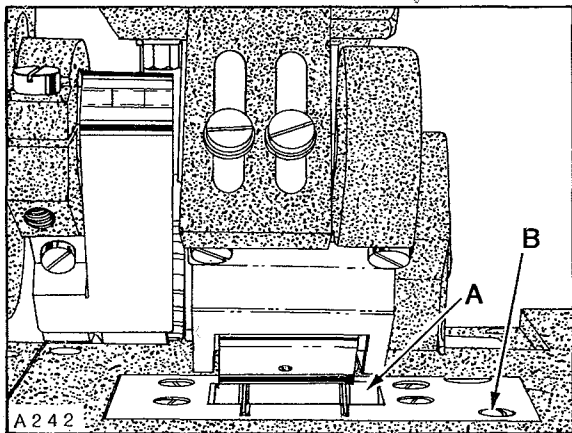


Fig. 39

Puller Roller must be set evenly on Idler Roller (A, Fig. 39) to ensure that the material will be pulled straight through the sewing area. Adjustment for feeding can be made by shimming Idler Roller if necessary to achieve even mating. To shim roller remove one screw (B, Fig. 39) securing roller assembly. Remove Idler Roller Assembly and add shims as necessary between plate and bearing blocks to ensure even mating between Puller Roller and Idler Roller.

PULLER LIFT ADJUSTMENT

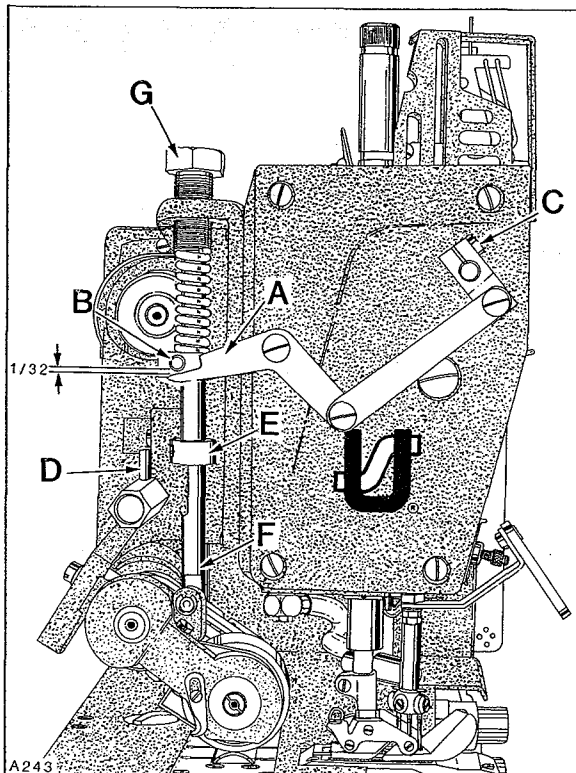


Fig. 40

With puller in operating position and presser foot resting on throat plate there should be 1/32 inch (.8mm) between puller lifter link (A, Fig. 40) and puller lifting pin (B). If adjustment is required loosen screw (C) in upper presser foot lifting shaft connection and raise or lower link (A) as required. Tighten connection screw (C) securely.

NOTE: When presser foot starts to lift, puller must lift at the same time.

For sewing operations not requiring puller action the machine can be run with puller raised off the material by turning the manual lock-up pin (D) up to position under stop collar (E). If the puller has insufficient clearance to clear material, stop collar (E) can be raised or lowered on tension shaft (F)

PULLER LIFT ADJUSTMENT (Continued)

to suit. Adjust puller tension regulator (G) so it exerts only enough pressure on puller to feed work. Turning regulator clockwise to increase the presser, counterclockwise acts the reverse. If material does not pull straight through behind presser foot adjust main stitch length slightly so material will lay flat, until material is straight.

STITCH SHORTENING DEVICE

Stitch shortening device is set at the factory to produce one-half of the recommended stitch length per inch. If adjustment is required loosen lock screw (A, Fig. 41) and turn stop screw (B) clockwise for less stitches per inch, counterclockwise gives more stitches per inch.

The connecting arm (A, Fig. 42) is connected to the collar adaptor (B) located on the feed rocker shaft (C). The connecting arm (A) activates the feed rocker shaft to achieve the desired stitch length depending on operation.

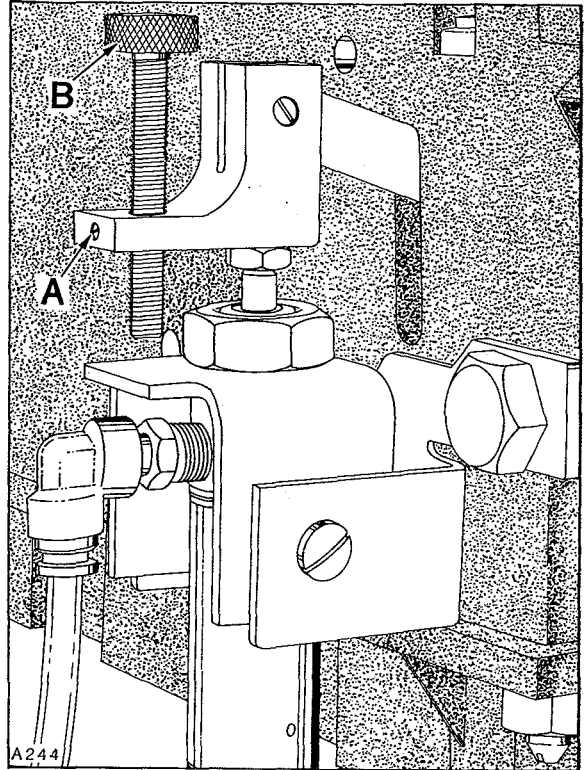


Fig. 41

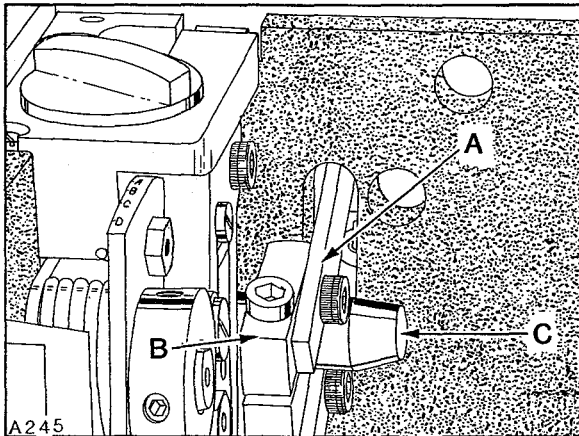


Fig. 40

PULLER SPROCKETS COMBINATIONS

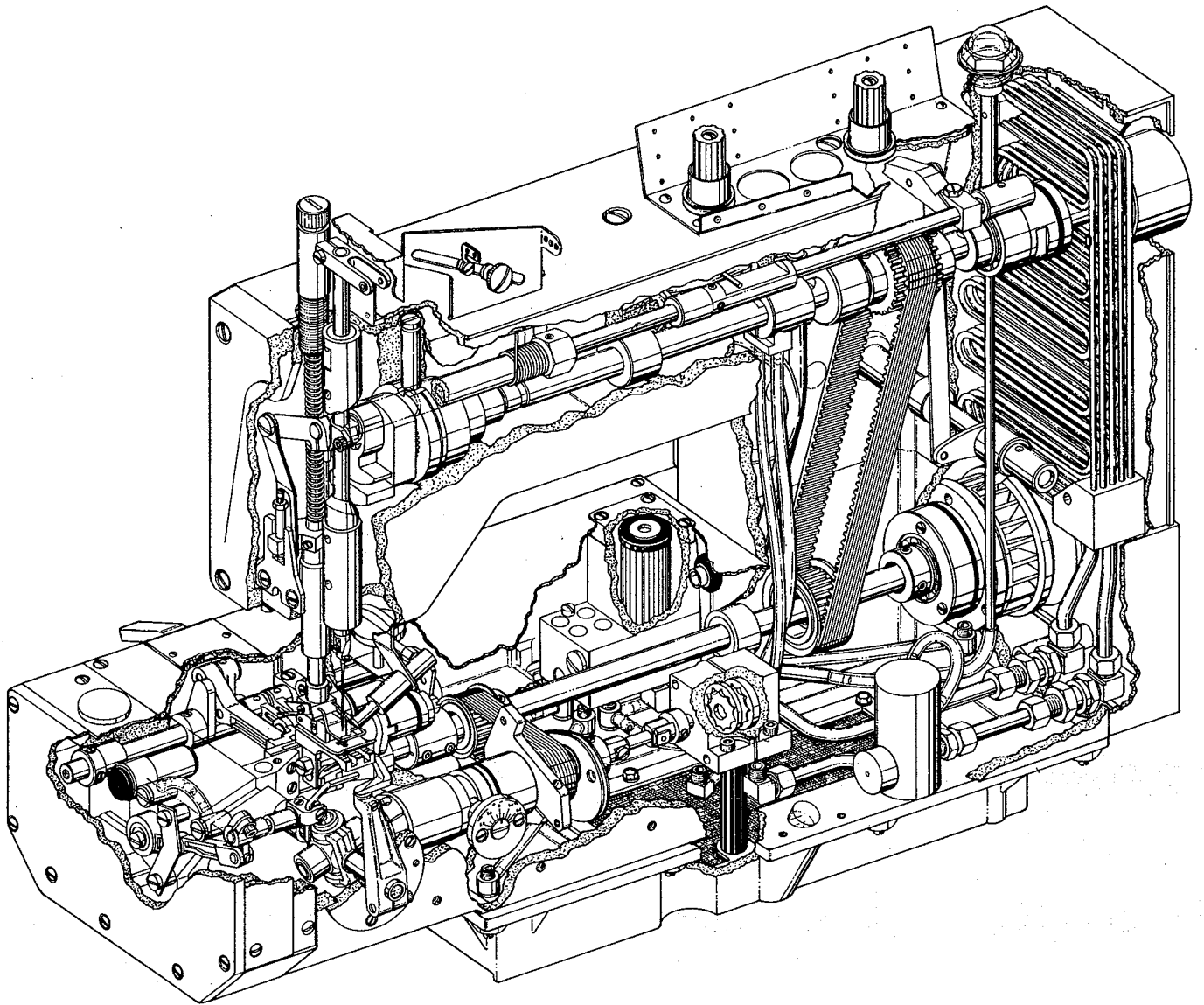
This chart shows the stitch length produced by available sprocket combinations. Sprockets furnished in the machines produces approximately 9.2 S.P.I. If a different length is required, refer to the chart for appropriate dash number when ordering sprockets-C50042-Z().

Belt Puller Sprocket Variations

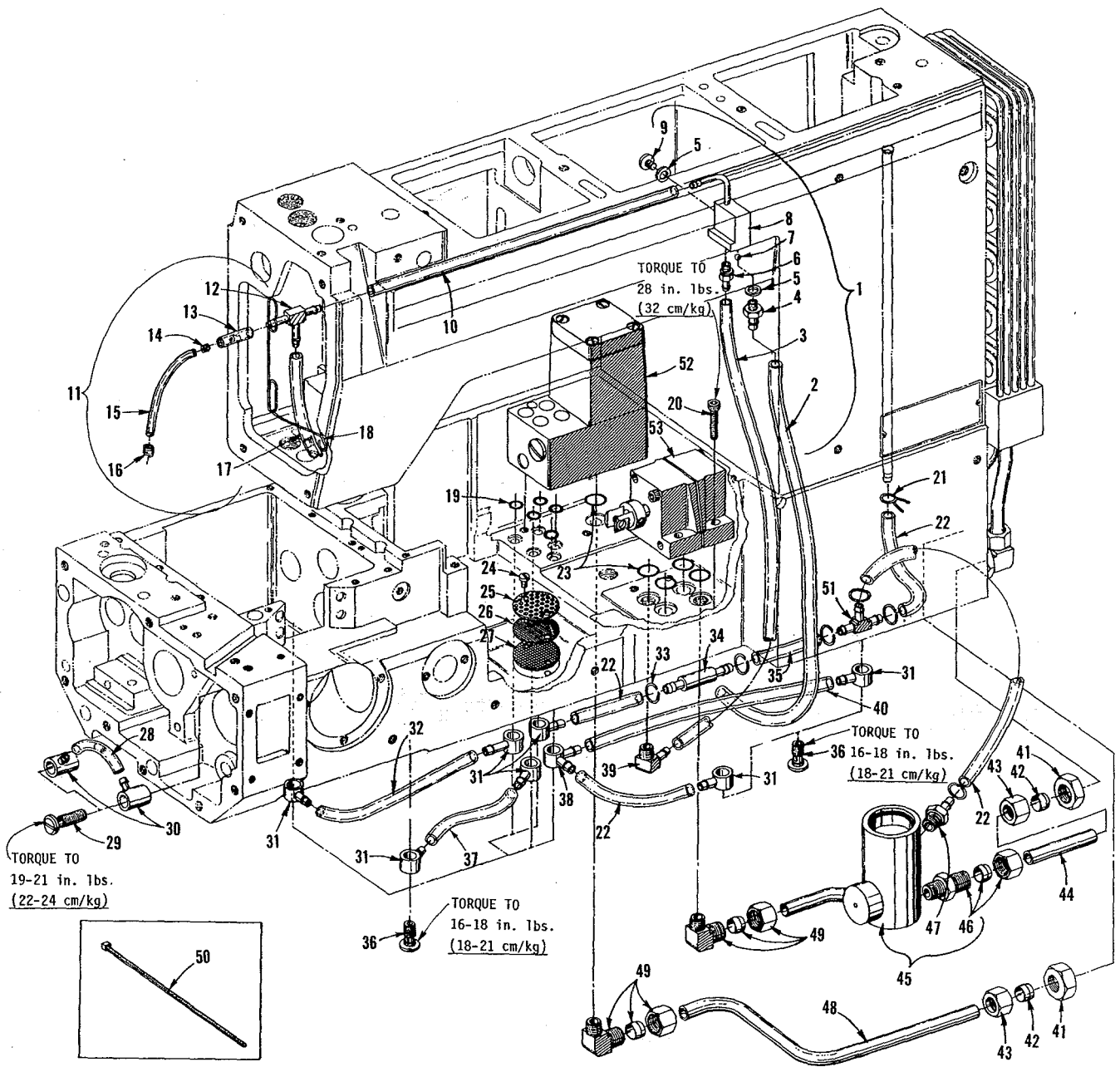
		NUMBER OF STITCHES PER INCH								
DRIVEN SPROCKET PART NUMBER	-18	13.10 SPI (1.94mm)	11.92 SPI (2.13mm)	10.92 SPI (2.33mm)	10.08 SPI (2.52mm)	9.37 SPI (2.71mm)	8.74 SPI (2.91mm)	8.19 SPI (3.10mm)	7.71 SPI (3.29mm)	
	-17	12.37 SPI (2.05mm)	11.26 SPI (2.26mm)	10.31 SPI (2.46mm)	9.52 SPI (2.67mm)	8.84 SPI (2.87mm)	8.25 SPI (3.08mm)	7.73 SPI (3.28mm)	7.28 SPI (3.49mm)	6.88 SPI (3.69mm)
	-16	11.65 SPI (2.18mm)	10.60 SPI (2.40mm)	9.71 SPI (2.62mm)	8.96 SPI (2.83mm)	8.33 SPI (3.05mm)	7.77 SPI (3.27mm)	7.28 SPI (3.49mm)	6.86 SPI (3.70mm)	6.48 SPI (3.92mm)
	-15		9.94 SPI (2.56mm)	9.10 SPI (2.79mm)	8.40 SPI (3.02mm)	7.81 SPI (3.25mm)	7.28 SPI (3.49mm)	6.83 SPI (3.72mm)	6.43 SPI (3.95mm)	6.07 SPI (4.19mm)
	-14			8.49 SPI (2.99mm)	7.84 SPI (3.24mm)	7.28 SPI (3.49mm)	6.79 SPI (3.74mm)	6.37 SPI (3.99mm)	6.00 SPI (4.24mm)	5.66 SPI (4.49mm)
	-13				7.28 SPI (3.49mm)	6.77 SPI (3.75 mm)	6.31 SPI (4.02mm)	5.92 SPI (4.29mm)	5.57 SPI (4.56mm)	5.26 SPI (4.83mm)
	-12					6.24 SPI (4.07mm)	5.83 SPI (4.30mm)	5.46 SPI (4.65mm)	5.14 SPI (4.94mm)	4.86 SPI (5.23mm)
	-11						5.34 SPI (4.76mm)	5.00 SPI (5.08mm)	4.71 SPI (5.39mm)	4.45 SPI (5.71mm)
	-10							4.55 SPI (5.58mm)	4.29 SPI (5.92mm)	4.05 SPI (6.27mm)
		-10	-11	-12	-13	-14	-15	-16	-17	-18
		DRIVE SPROCKET PART NUMBER								

Roller Puller Sprocket Variations

		NUMBER OF STITCHES PER INCH								
DRIVEN SPROCKET PART NUMBER	-18	14.69 SPI (1.73mm)	13.37 SPI (1.90mm)	12.25 SPI (2.07mm)	11.30 SPI (2.25mm)	10.50 SPI (2.42mm)	9.80 SPI (2.59mm)	9.18 SPI (2.77mm)	8.65 SPI (2.94mm)	
	-17	13.87 SPI (1.83mm)	12.62 SPI (2.01mm)	11.56 SPI (2.20mm)	10.67 SPI (2.38mm)	9.91 SPI (2.56mm)	9.25 SPI (2.75mm)	8.67 SPI (2.93mm)	8.16 SPI (3.11mm)	7.71 SPI (3.30mm)
	-16	13.06 SPI (1.94mm)	11.88 SPI (2.13mm)	10.89 SPI (2.53mm)	10.05 SPI (2.53mm)	9.34 SPI (2.72mm)	8.71 SPI (2.92mm)	8.16 SPI (3.11mm)	7.69 SPI (3.30mm)	7.26 SPI (3.50mm)
	-15		11.14 SPI (2.28mm)	10.21 SPI (2.49mm)	9.42 SPI (2.70mm)	8.75 SPI (2.90mm)	8.16 SPI (3.11mm)	7.65 SPI (3.32mm)	7.21 SPI (3.52mm)	6.80 SPI (3.73mm)
	-14			9.52 SPI (2.67mm)	8.76 SPI (2.89mm)	8.16 SPI (3.11mm)	7.62 SPI (3.33mm)	7.14 SPI (3.56mm)	6.72 SPI (3.78mm)	6.35 SPI (4.00mm)
	-13				8.16 SPI (3.11mm)	7.59 SPI (3.35 mm)	7.08 SPI (3.59mm)	6.63 SPI (3.83mm)	6.25 SPI (4.07mm)	5.90 SPI (4.31mm)
	-12					7.00 SPI (3.63mm)	6.53 SPI (3.89mm)	6.12 SPI (4.15mm)	5.76 SPI (4.41mm)	5.44 SPI (4.67mm)
	-11						5.98 SPI (4.24mm)	5.61 SPI (4.53mm)	5.28 SPI (4.81mm)	4.99 SPI (5.09mm)
	-10							5.10 SPI (4.98mm)	4.81 SPI (5.28mm)	4.54 SPI (5.60mm)
		-10	-11	-12	-13	-14	-15	-16	-17	-18
		DRIVE SPROCKET PART NUMBER								

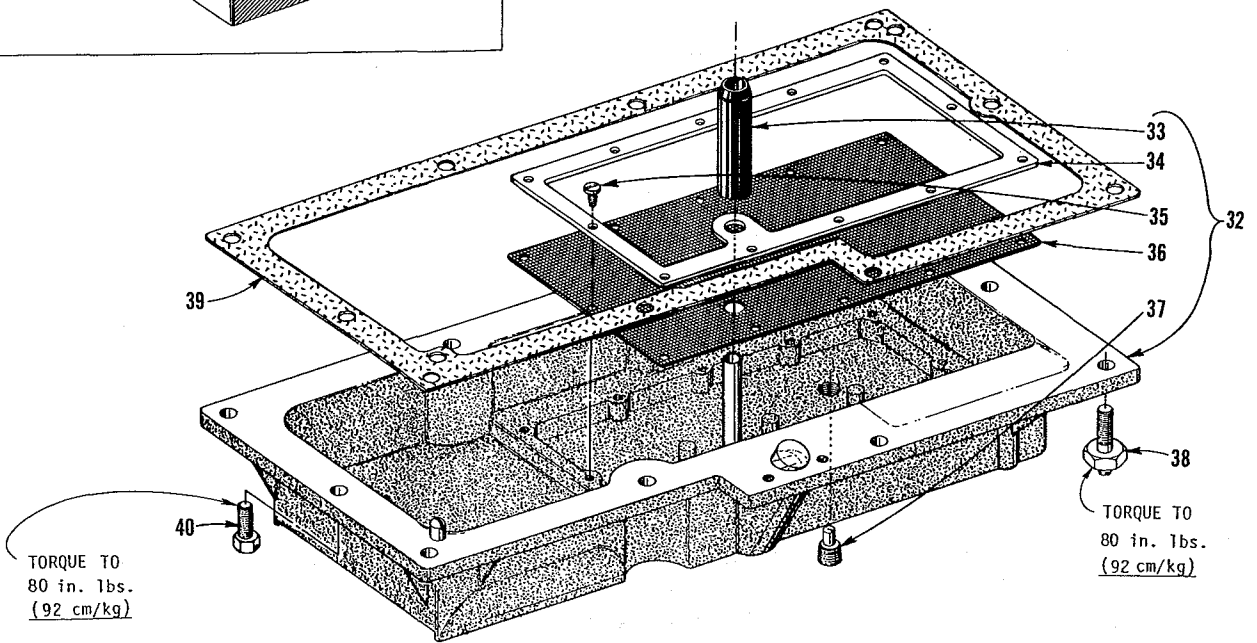
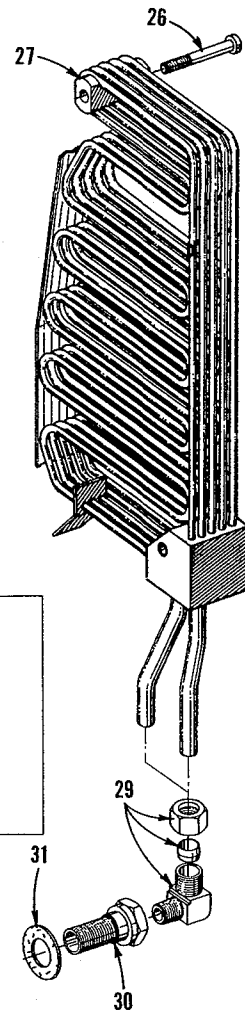
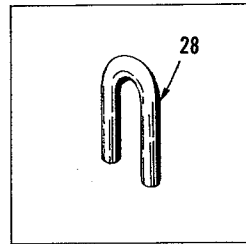
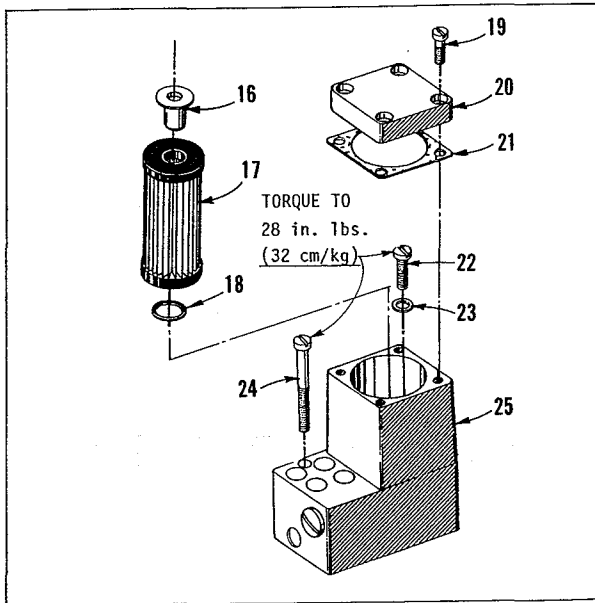


EXPLODED VIEWS
AND
DESCRIPTION OF PARTS



LUBRICATION PARTS

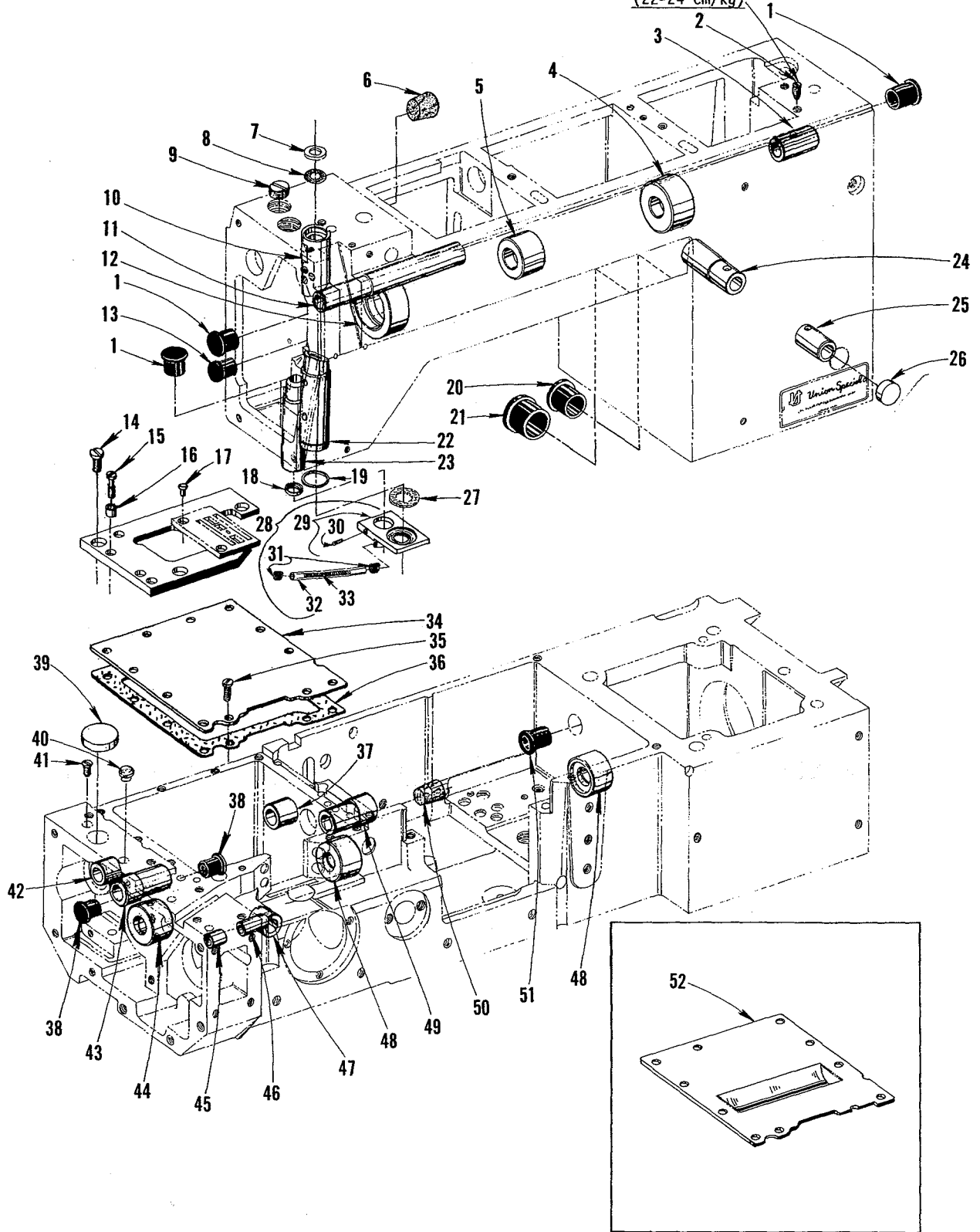
<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Amt. Req.</u>
1	C50093 CG	Oil Syphon Assembly -----	1
2	C50093 CH	Tube, syphon drain -----	1
3	C50093 CJ	Tube, oil return -----	1
4	C50093 CL	Fitting, barb -----	1
5	56322 B	Gasket -----	2
6	671 F-4	Fitting, barb -----	1
7	79-31	Ball, steel -----	1
8	C50093 CM	Manifold, oil syphon -----	1
9	22730	Screw -----	1
10	50393 AX	Tube, oil return -----	1
11	50393 DC	Oil Return Tube Assembly -----	1
12	671 F-41	Tee, union -----	1
13	50393 AY	Tube, sleeve -----	1
14	666-322	Felt -----	1
15	50393 CU	Tube, oil return -----	1
16	50393 CS	Spring, tube retainer -----	1
17	50393 CY	Tube, oil return -----	1
18	50393 V	Retainer, wire (oil tube) -----	1
19	660-220	"O" Ring -----	5
20	22652 B-12	Screw -----	4
21	660-885	Clamp, oil tube -----	1
22	C50094 P	Tube, oil -----	4
23	660-683	"O" Ring -----	5
24	73	Screw -----	2
25	C50094 G	Screen, oil filter -----	1
26	C50094 AM	Screen, oil -----	1
27	C50094 F	Strainer, oil -----	1
28	C50094 V	Tube, oil -----	1
29	22720 B	Screw, oil connection -----	2
30	C50094 U	Connection, oil, single feed -----	2
31	C50094 C	Connection, oil, single feed -----	7
32	C50094 Y	Tube, oil -----	1
33	RI-37	Ring, wire -----	6
34	C50093 BX	Valve, check -----	1
35	C50094 AA	Tube, oil -----	1
36	22720 A	Screw, oil connection -----	8
37	C50094 Z	Tube, oil -----	1
38	C50094 B	Connection, oil, double feed -----	1
39	RM3728-1	Fitting, oil -----	1
40	C50094 R	Tube, oil -----	1
41	C50093 BE	Nut -----	2
42	660-750	Sleeve, compression -----	2
43	660-749	Nut, compression -----	2
44	C50094 AC	Tube, oil -----	1
45	C50093 CV	Valve, priority -----	1
46	660-855	Connector, compression -----	1
47	671 C-4	Connector, male -----	1
48	C50094	Tube, oil -----	1
49	666-294	Elbow, male -----	2
50	670 E-2	Tie, cable; to secure Ref. No. 2 to Ref. No. 48 ----	1
51	671 F-41	Tee, union -----	1
52 and 53		See Following Page	



OIL PAN AND LUBRICATION PARTS

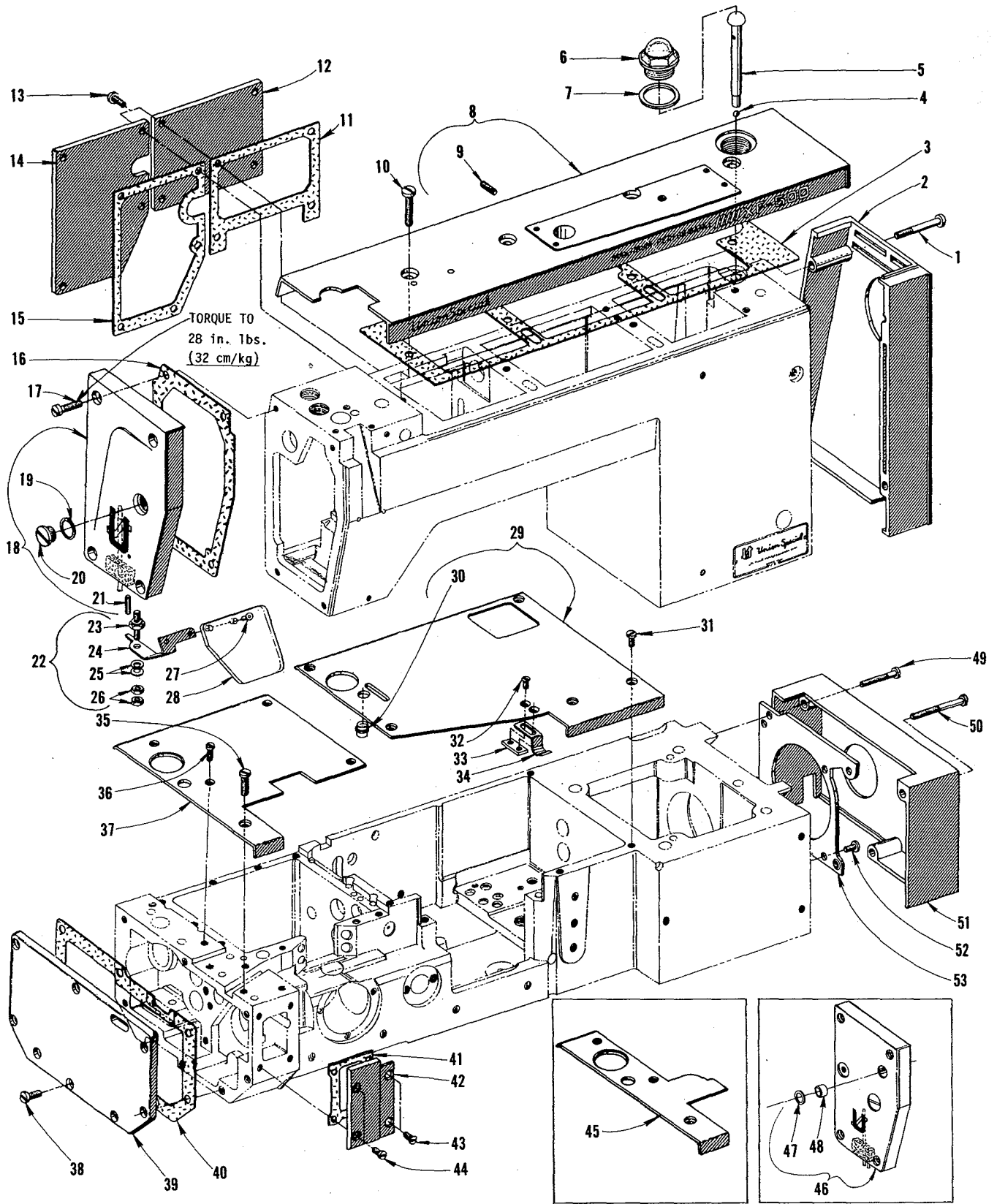
<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Amt. Req.</u>
1	C50093 L	Oil Pump Assembly -----	1
2	22652 A-20	Screw -----	4
3	C50093 M	Housing, pump (pressure) -----	1
4	C50093 U	Gerotor, 1/4 inch (6.4mm) thick -----	1
5	C50093 T	Divider, housing -----	1
6	660-684	"O" Ring -----	1
7	C50093 S	Spacer, housing -----	1
8	C50093 R	Gerotor, 1/8 inch (3.2mm) thick -----	1
9	C50093 P	Shaft -----	1
10	22784 E	Screw -----	1
11	C50093 Z	Pin, dowel -----	1
12	C50093 N	Housing, pump (suction) -----	1
13	660-739	Seal, lip -----	1
14	C50093 BS	Coupling -----	1
15	22764	Screw, spot -----	1
16	C50093 CB	By-Pass, oil filter -----	1
17	C50093 CA	Filter, oil -----	1
18	660-206	"O" Ring -----	1
19	22541	Screw -----	4
20	C50093 F	Cover -----	1
21	C50093 G	Gasket -----	1
22	22541 C	Screw -----	1
23	56322 B	Gasket -----	1
24	22851 A	Screw -----	1
25	C50093	Manifold, flow control -----	1
26	22592 B	Screw, for Styles XF511H100MF, MG, MAW, 112MF, 112MG and 151MF -----	2
27	C50093 AN	Cooler, oil; for Styles XF511H100MF, MG, MAW, 112MF, 112MG and 151MF -----	1
28	C50094 W	By-Pass, tube, oil cooler; all Styles except XF511H100MF, MG, MAW, 112MF, 112MG and 151MF -----	1
29	666-294	Elbow, male -----	2
30	C50093 AJ	Fitting, adaptor -----	2
31	C50093 BH	Gasket -----	2
32	C50093 AA	Pan, oil -----	1
33	C50093 AE	Sleeve, stand pipe -----	1
34	C50093 AG	Plate, filter -----	1
35	22569 C	Screw -----	12
36	C50093 AH	Screen, filter -----	1
37	22571 E	Screw, oil drain plug (magnetic) -----	2
38	C50095	Screw -----	8
39	C50093 AB	Gasket -----	1
40	22881 B	Screw -----	2

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



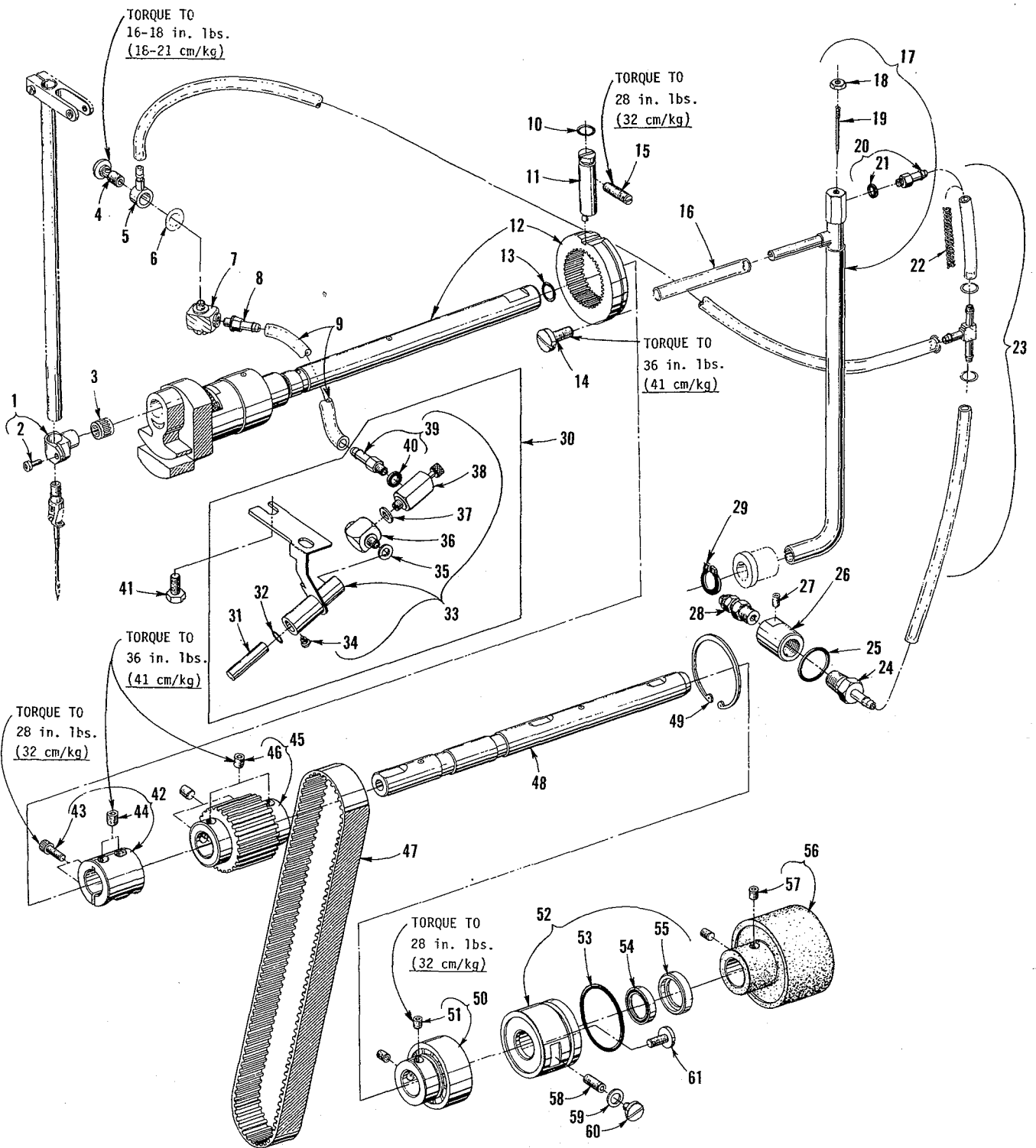
MAIN FRAME BUSHINGS AND PLUGS

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Amt. Req.</u>
1	C50093 AY	Plug, oil -----	3
2	22894 K	Screw -----	1
3	C50090 K	Bushing, presser foot lifter lever (right) -----	1
4	C50055 S	Bushing, upper mainshaft (right) -----	1
5	C50055 L	Bushing, upper mainshaft (center) -----	1
6	C067 H	Plug, cork -----	1
7	C50054 D	Shield, needle bar bushing -----	1
8	666-311	Screen, needle bar bushing -----	1
9	22539 G	Screw, plug -----	1
10	50354 D	Bushing, needle bar (upper) -----	1
11	C50090 E	Bushing, presser foot lifter lever (left) -----	1
12	C50055 K	Bushing, upper mainshaft (left) -----	1
13	C50093 CT	Plug, oil -----	1
14	22839	Screw -----	3
15	22587 N	Screw -----	2
16	C50080 B	Ferrule, locating -----	2
17	87	Screw, all Styles except XF512E100HB-1, MP-12, MP-16, XF513E100HJ-8, HJ-9, HR-9, 101HR-9 and 112HR-9 -----	2
-	22570	Screw, for Styles XF512E100HB-1, MP-12, MP-16, XF513E100HJ-8, HJ-9, HR-9, 101HR-9 and 112HR-9 -----	2
18	660-739	Seal, oil, presser bar bushing -----	1
19	661-1	"O" Ring, needle bar bushing (lower) -----	1
20	C50093 AW	Plug, oil -----	1
21	C50093 AX	Plug, oil -----	1
22	50354 E	Bushing, needle bar (lower) -----	1
23	C50057 D	Bushing, presser bar -----	1
24	C50090 F	Bushing, presser foot lifter lever (rear) -----	1
25	C50090 G	Bushing, presser foot lifter lever (front) -----	1
26	51-627 BLK	Plug -----	1
27	666-32	Felt, oil return -----	1
28	50393 DD	Needle Bar Oil Collector Plate Assembly -----	1
29	50393 CX	Plate, oil collector -----	1
30	22733	Screw -----	1
31	50393 CS	Spring, tube retainer -----	2
32	50393 CV	Tube, oil return -----	1
33	50393 CZ	Spring -----	1
34	C50082 D	Cover, feed chamber; all Styles except XF511E101MF, XF511E152MF, XF513E101HR-9, XF513E112HR-9, XF511H112MF, 112MG and 151MF -----	1
35	22569 G	Screw -----	10
36	C50082 E	Gasket -----	1
37	C50036 J	Bushing, feed rocker shaft (right) -----	1
38	C50035 Z	Plug -----	2
39	C50051 X	Plug, stitch adjustment hole -----	1
40	C50049 A	Window, stitch indicator (left) -----	1
41	22521	Screw, plug -----	1
42	C50036 U	Bushing, feed rocker shaft (left) -----	1
43	C50035 Y	Bushing -----	1
44	C50044 F	Bushing, feed drive shaft (left) -----	1
45	C50068 AG	Bushing, rear needle guard shaft (left) -----	1
46	C50068 X	Bushing, rear needle guard shaft (right) -----	1
47	C50044 D	Bushing, looper rocker shaft -----	1
48	C50044 G	Bushing, feed drive shaft (right) and lower mainshaft (left) -----	2
49	C50035 G	Bushing, stitch control shaft -----	1
50	C067 F	Plug, cork -----	1
51	C50093 DB	Plug, oil -----	1
52	C50082 DA	Cover, feed chamber; for Styles XF511E101MF and XF513E101HR-9 -----	1



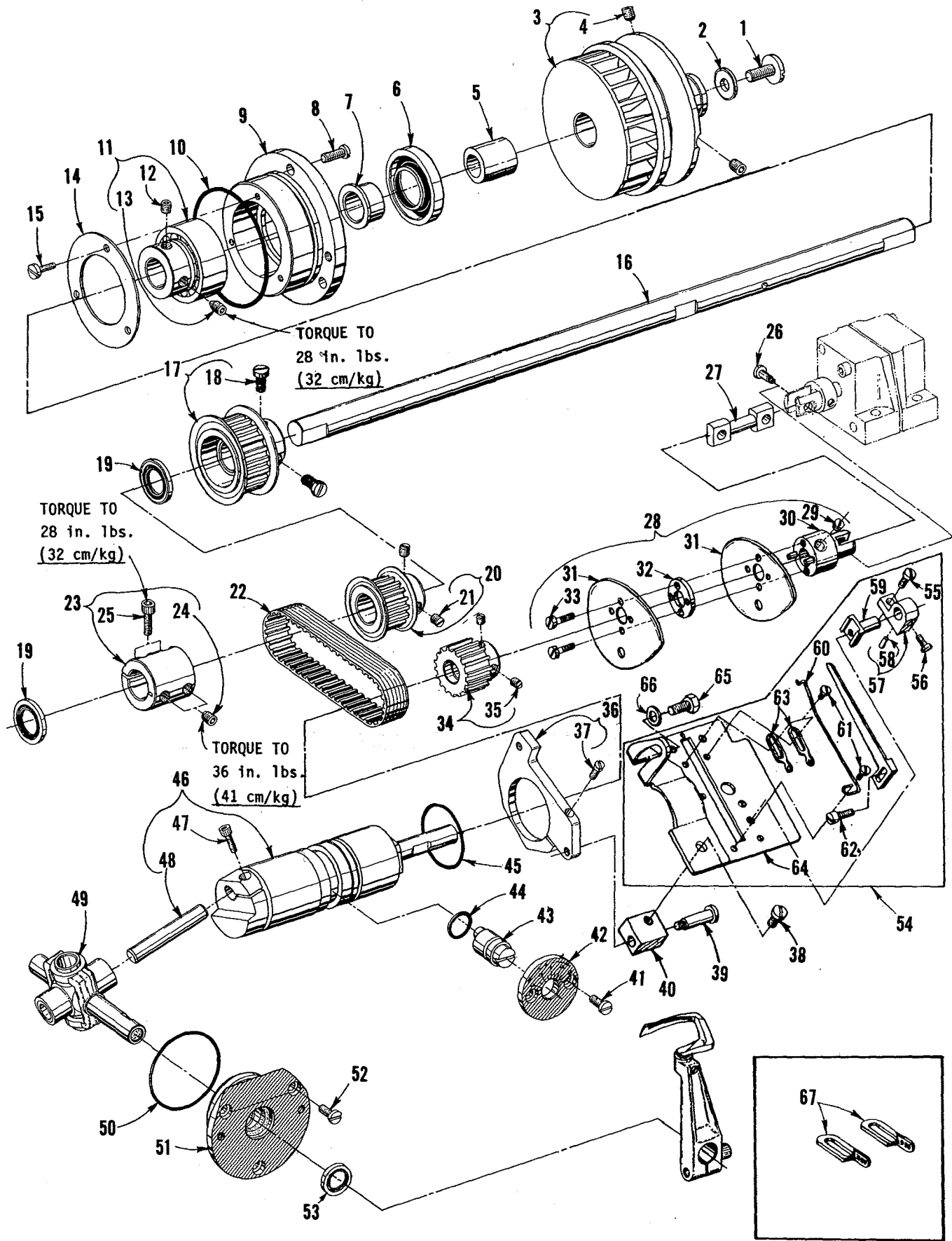
SAFETY SHEILD, COVERS AND CLOTH PLATES

Ref. No.	Part No.	Description	Amt. Req.
1	22851 D	Screw -----	4
2	C50082 L	Cover, oil cooler -----	1
3	C50082 T	Gasket -----	1
4	21192 R	Ball, steel -----	1
5	C50093 AS	Indicator, oil flow -----	1
6	C50093 AU	Cap, oil filler -----	1
7	C50082 X	Gasket -----	1
8	C50082 U	Cover, top for single needle machines -----	1
-	C50082 UA	Cover, top for two and three needle machines -----	1
9	22597 E	Screw -----	1, 2 or 3
10	22861 C	Screw -----	4
11	C50082 N	Gasket -----	1
12	C50082 M	Cover, head (right rear) all Styles except puller machines -----	1
13	22569 M	Screw -----	9
14	C50082 V	Cover, head (left rear) all Styles except puller machines -----	1
15	C50082 K	Gasket -----	1
16	C50082 AW	Gasket -----	1
17	22541 C	Screw -----	4
18	50382 BN	Cover, head; all Styles except puller machines -----	1
19	C50082 AA	Gasket -----	1
20	22883 B	Screw, plug -----	1
21	660-219 A	Pin, roll -----	1
22	C50095 G	Safety Shield Assembly -----	1
23	C50095 D	Stud -----	1
24	C50095 E	Bracket, mounting -----	1
25	97127	Washer, spring -----	2
26	12934 A	Nut -----	2
27	RM2879-2	Rivet -----	2
28	C50095 F	Shield, mounting -----	1
29	C50001 A	Plate, cloth (right) -----	1
30	C50049	Window, stitch indicator -----	1
31	22569 G	Screw -----	5
32	87	Screw -----	2
33	C50032 D	Plate, nut -----	1
34	C50032 B	Spring, latch (front cover) -----	1
35	22585 U	Screw, for cloth plates -----	1
36	22569 B	Screw, for cloth plate; Nos. C50001 B, C50001 C, C50001 E, C50001 G and C50001 J -----	4
-	22569 B	Screw, for cloth plate; Nos. 99679 SD and 99679 SC -----	2
37	C50001 B	Plate, cloth (left) for Styles XF511B100MF, XF511H100MF, MG and MAW -----	1
-	C50001 C	Plate, cloth (left) for Styles XF512E100HB-1, MP-12, MP-16, XF513E100HJ-8, HJ-9 and HR-9 -----	1
-	C50001 E	Plate, cloth (left) for Style XF511E101MF -----	1
-	C50001 G	Plate, cloth (left) for Style XF511E118MF -----	1
-	C50001 J	Plate, cloth (left) for Style XF513E101HR-9 -----	1
38	22517	Screw -----	8
39	C50082 B	Cover, end -----	1
40	C50082 C	Gasket -----	1
41	C50082 AK	Gasket -----	1
42	C50082 AJ	Cover, end (front) -----	1
43	22526 H	Screw -----	2
44	22569 G	Screw -----	2
45	99679 SC	Plate, cloth (left) for Style XF513E112HR-9 -----	1
-	99679 SD	Plate, cloth (left) for Styles XF511E152MF, XF511H112MF, 112MG and 151MF -----	1
46	50382 BP	Cover, head (puller machines) -----	1
47	660-739	Seal, lip -----	1
48	660-896	Bushing -----	1
49	22569 V	Screw -----	2
50	22569 W	Screw -----	2
51	C50090 A	Cover, pulley assembly -----	1
52	22569 C	Screw -----	5
53	C50075	Cover, blower -----	1



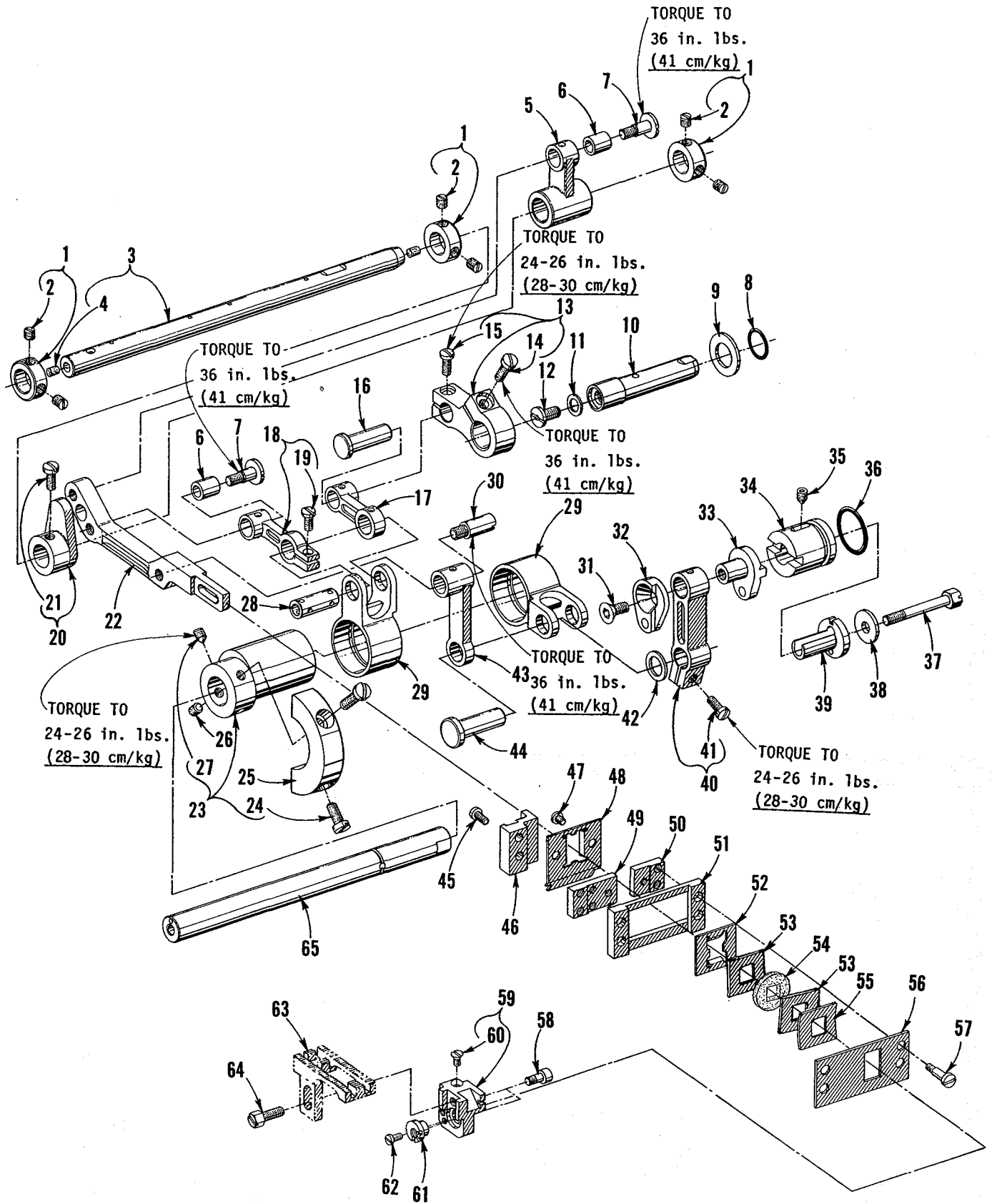
NEEDLE DRIVE (CARDAN) AND ASSOCIATED PARTS

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Amt. Req.</u>
1	C50055	Connection, needle bar -----	1
2	22653 J-4	Screw -----	1
3	660-721 A	Bearing, cage (counterweight marked "A") -----	1
-	660-721 C	Bearing, cage (counterweight marked "C") -----	1
4	22720 A	Screw -----	1
5	C50094 X	Fitting, air -----	1
6	41350 X	Washer, fiber -----	1
7	RM3633-1	Fitting, swivel -----	1
8	671 F-4	Fitting, barb -----	1
9	50393 CF	Tube, air -----	1
10	660-220	"O" Ring -----	1
11	C50055 C	Eccentric, for internal tooth gear -----	1
12	C50055 W	Cardan Drive Assembly, for all Styles except XF512E100HB-1, XF513E100HJ-8, HJ-9, HR-9, 101HR-9 and 112HR-9 -----	1
-	C50055 Y	Cardan Drive Assembly, for Styles XF512E100HB-1, XF513E100HJ-8, HJ-9, HR-9, 101HR-9 and 112HR-9 -----	1
13	660-206	"O" Ring -----	1
14	22806 D	Screw -----	2
15	22597 E	Screw -----	1
16	C50094 AJ	Tube -----	1
17	29480 XA	Vacuum Assembly -----	1
18	41071 G	Nut, lock -----	1
19	671 F-73	Valve, needle -----	1
20	671 F-4	Fitting, barb -----	1
21	RM2964 B	Gasket -----	1
22	53193 B	Spring -----	1
23	671 F-71	Tube Assembly -----	1
24	671 C-4	Connector, male -----	1
25	660-762	"O" Ring -----	1
26	C50067 L	Housing, air -----	1
27	22894 R	Screw -----	1
28	660-400	Fitting, straight -----	1
29	660-989	Clamp, tube -----	1
30	21237 DG	Needle Cooler, for all Styles except XF513E100HJ-8, HJ-9, HR-9, 101HR-9 and 112HR-9 -----	1
-	21237 DP	Needle Cooler, for Styles XF513E100HJ-8, HJ-9, HR-9, 101HR-9 and 112HR-9 -----	1
31	21237 DF	Tube, needle cooler for single needle machines -----	1
-	21237 EA	Tube, needle cooler for two needle machines -----	1
-	21237 DR	Tube, needle cooler for three needle machines -----	1
32	660-886	"O" Ring -----	1
33	21237 DU	Holder, needle cooler; all Styles except XF513E100HJ-8, HJ-9, HR-9, 101HR-9 and 112HR-9 -----	1
-	51-673 BLK	Holder, needle cooler; for Styles XF513E100HJ-8, HJ-9, HR-9, 101HR-9 and 112HR-9 -----	1
34	22784 N	Screw -----	1
35	RM2964 B	Gasket -----	1
36	RM3633-1	Fitting, swivel -----	1
37	660-93	Washer -----	1
38	671-17	Valve, control -----	1
39	671 F-4	Fitting, barbed -----	1
40	RM2964 B	Gasket -----	1
41	22882 D	Screw -----	2
42	C50043	Coupling, upper mainshaft -----	1
43	22652 A-8	Screw -----	2
44	22894 AE	Screw, set -----	2
45	C50042 M	Sprocket, upper mainshaft -----	1
46	22894 AE	Screw -----	4
47	C50042 Y	Belt, upper mainshaft timing -----	1
48	C50022 J	Mainshaft, upper -----	1
49	660-713	Ring, retaining -----	1
50	C50036 P	Bearing and Collar Assembly -----	1
51	22894 AD	Screw -----	2
52	C50093 AK	Housing, mainshaft oil seal -----	1
53	660-708	"O" Ring -----	1
54	660-680	Seal, oil -----	1
55	C50093 BK	Shield, oil seal housing -----	1
56	C50021 A	Handwheel, for all Styles except XF512E100HB-1, XF513E100HJ-8, HJ-9, HR-9, 101HR-9 and 112HR-9 -----	1
-	C50021 E	Handwheel, for Styles XF512E100HB-1, XF513E100HJ-8, HJ-9, HR-9, 101HR-9 and 112HR-9 -----	1
57	22894 C	Screw, set -----	2
58	22894 E	Screw -----	1
59	56322 B	Gasket -----	1
60	22730	Screw -----	1
61	22569 U	Screw -----	2



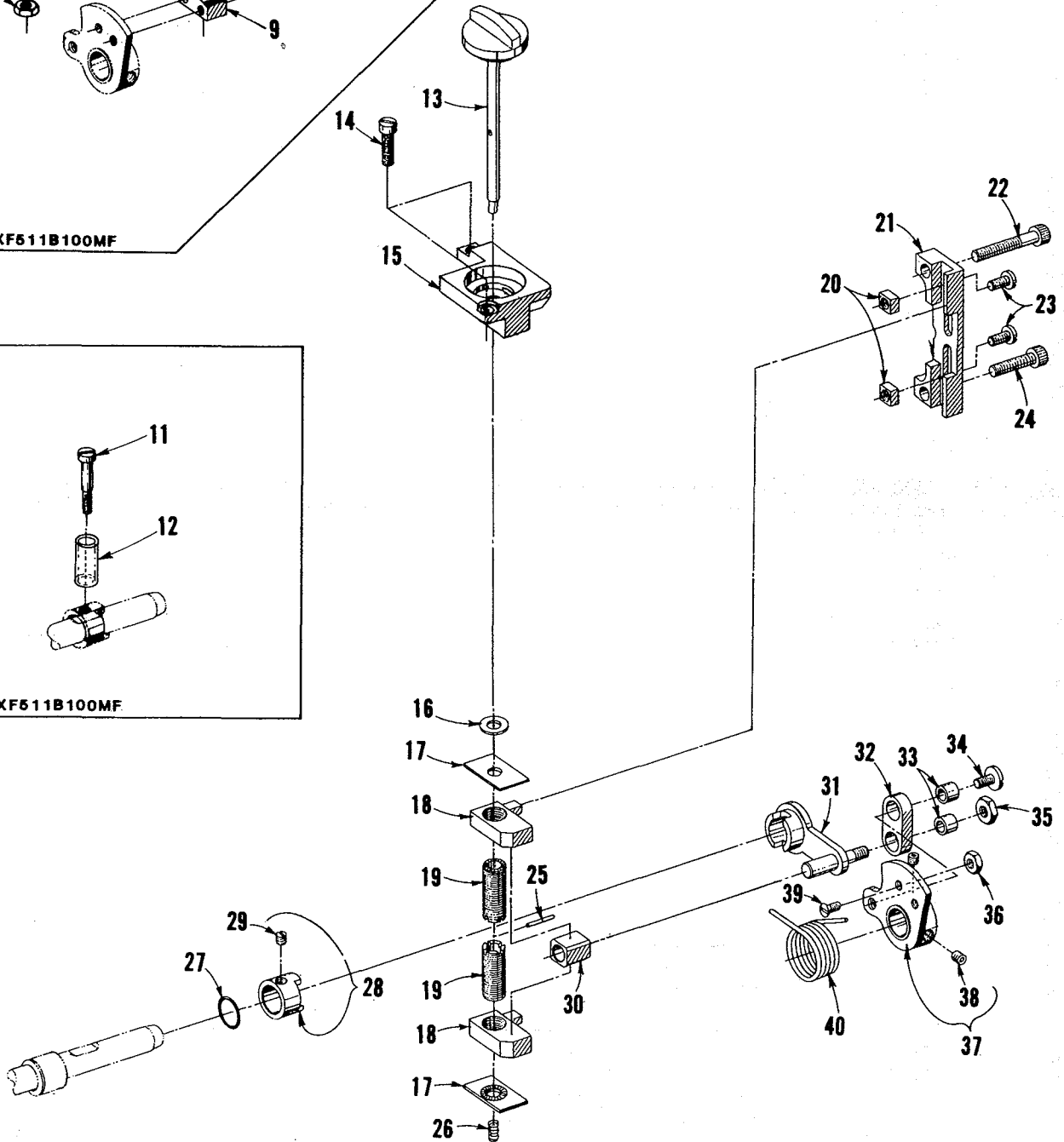
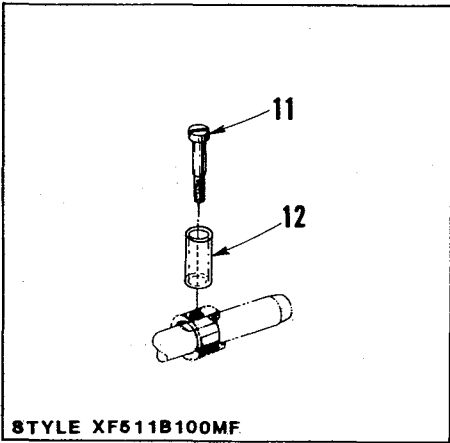
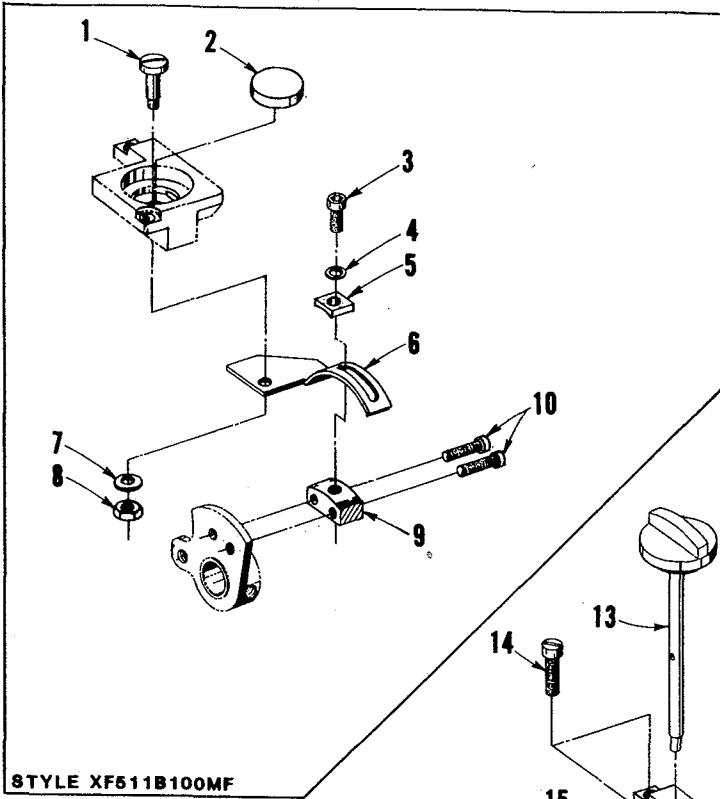
LOWER MAINSHAFT AND LOOPER DRIVE

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Amt. Req.</u>
1	141	Screw -----	1
2	HA20 A	Washer -----	1
3	C50021 D	Pulley, for Styles XF511H100MF, MG, MAW, 112MF, 112MG and 151MF -----	1
-	C50021 F	Pulley, for all Styles except XF511H100MF, MG, MAW, 112MF, 112MG and 151MF -----	1
4	22651 CD-4	Screw, set -----	2
5	C50021 C	Spacer, pulley; for all Styles except XF511H100MF, MG, MAW, 112MF, 112MG and 151MF -----	1
6	660-688	Seal, mainshaft -----	1
7	C50090 B	Collar, spacer -----	1
8	22569 B	Screw -----	3
9	C50090	Housing, mainshaft bearing -----	1
10	660-757	"O" Ring -----	1
11	C50036 P	Bearing and Collar Assembly -----	1
12	22894 AD	Screw, set -----	1
13	22894 L	Screw, spot (required to replace screw in Ref. No. 11) -----	1
14	C50090 D	Plate, retaining -----	1
15	22520	Screw -----	3
16	C50022 A	Mainshaft, lower -----	1
17	C50042 H	Sprocket, lower mainshaft -----	1
18	22839 A	Screw -----	2
19	660-719	Seal, oil -----	2
20	C50042 G	Sprocket, looper drive -----	1
21	98	Screw, set -----	2
22	C50042 AD	Belt, looper drive -----	1
23	C50043	Coupling, lower mainshaft -----	1
24	22894 AE	Screw, set -----	2
25	22652 A-8	Screw -----	2
26	22731	Screw -----	2
27	C50093 BC	Shaft, connecting -----	1
28	C50023 F	Take-Up Assembly, looper thread -----	1
29	22580 D	Screw, set -----	2
30	C50023 E	Coupling -----	1
31	C50023 G	Disc, take-up -----	2
32	C50077 P	Spacer -----	1
33	22797 B	Screw -----	2
34	C50042 F	Sprocket, looper driven -----	1
35	88	Screw, set -----	2
36	C50057 A	Bracket, collar -----	1
37	22729 B	Screw -----	1
38	22528	Screw -----	1
39	9846 A	Screw -----	1
40	C50057 C	Block, pivot -----	1
41	22569 G	Screw -----	2
42	C50014 A	Plate, eccentric retaining -----	1
43	C50014	Eccentric, looper avoid adjusting -----	1
44	660-207	"O" Ring -----	1
45	660-443	"O" Ring -----	1
46	29105 AP	Looper Drive Assembly -----	1
47	22653 J-8	Screw -----	1
48	667 J-33	Crankpin -----	1
49	29192 AE	Rocker Assembly, looper -----	1
50	660-445	"O" Ring -----	1
51	C50044 A	Housing, looper rocker bearing -----	1
52	22569 G	Screw -----	3
53	C50044 V	Seal, oil -----	1
54	C50057 B	Cast-Off Support Plate Assembly -----	1
55	22768	Screw -----	1
56	87 U	Screw -----	1
57	52904 E	Bracket, retaining finger support -----	1
58	50-216 BLK	Pin, dowel -----	1
59	52804 E	Support, retaining finger -----	1
60	C50004	Wire, cast-off -----	1
61	73 A	Screw -----	3
62	22516	Screw -----	1
63	52958 D	Eyelet -----	2
64	C50057	Support, cast-off plate -----	1
65	303	Screw -----	1
66	53634 C	Washer -----	1
67	50358 H	Eyelet (two and three needle machines) -----	2



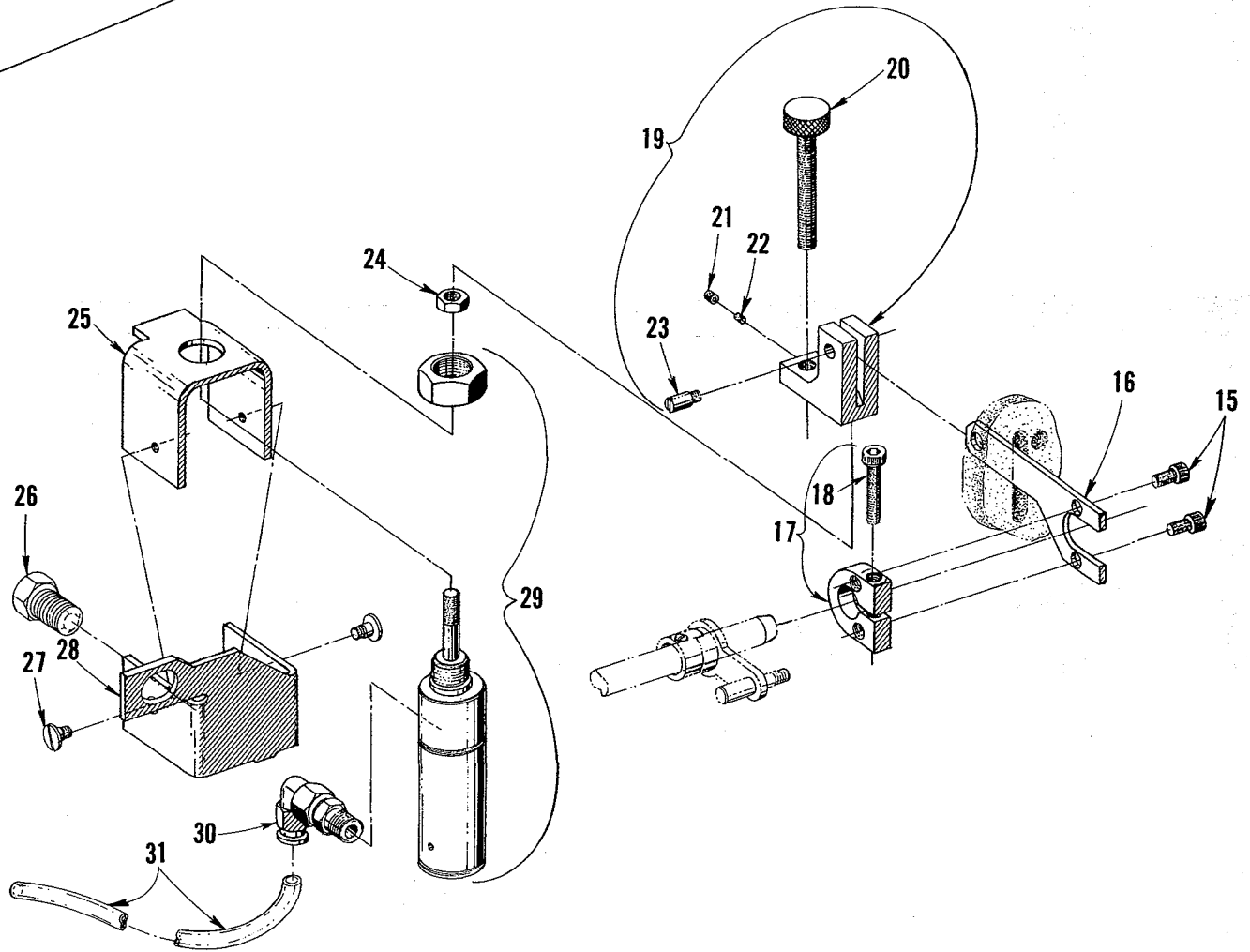
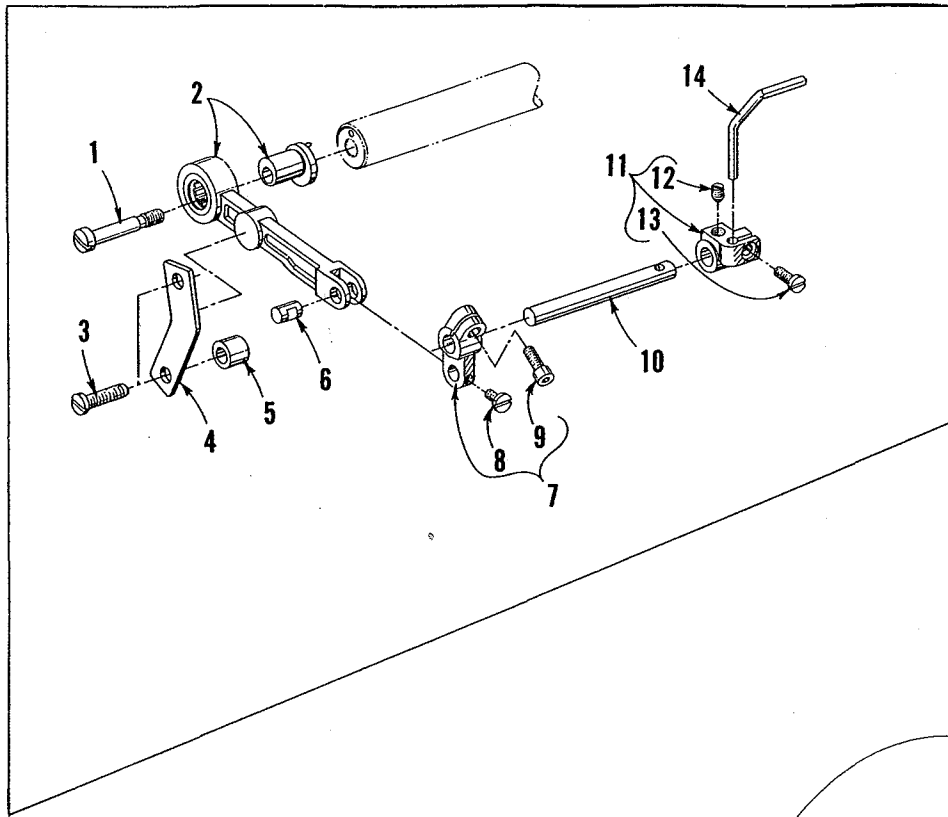
FEED DRIVING PARTS

Ref. No.	Part No.	Description	Amt. Req.
1	56335 D	Collar, thrust -----	3
2	98	Screw -----	2
3	C50035 K	Shaft, feed rocker -----	1
4	C067 D	Cork -----	2
5	C50035 F	Rocker, feed -----	1
6	C50035 A	Spacer -----	2
7	22738 M	Screw -----	2
8	660-683	"O" Ring -----	1
9	41391	Washer -----	1
10	C50035 T	Shaft, stitch regulator -----	1
11	56322 B	Gasket -----	1
12	22891 D	Screw -----	1
13	C50035 AM	Link, stitch control -----	1
14	22517	Screw -----	1
15	22516 A	Screw -----	1
16	C50036	Pin, link -----	1
17	C50035 B	Link, feed drive (intermediate) -----	1
18	C50035 AR	Link, intermittent -----	1
19	22516 B	Screw -----	1
20	C50034 D	Spacer, feed bar -----	1
21	22570 A	Screw -----	1
22	C50034 X	Feed Bar -----	1
23	C50034 Z	Eccentric -----	1
24	22517	Screw -----	2
25	C50047 G	Counterweight -----	1
26	95	Screw, set -----	1
27	96 A	Screw, spot -----	1
28	C50036 C	Pin, link -----	1
29	C50045 B	Link, connecting -----	2
30	22845 R	Screw -----	1
31	22839 G	Screw -----	1
32	C50036 M	Block, feed lift guide -----	1
33	C50036 F	Pin, feed lift adjusting -----	1
34	C50036 E	Bushing, feed lift adjusting -----	1
35	22894 K	Screw -----	1
36	660-677	"O" Ring -----	1
37	22519 M	Screw -----	1
38	HA20 A	Washer -----	1
39	C50036 D	Dial, feed lift adjusting -----	1
40	C50036 G	Link, intermittent (feed lift control) -----	1
41	22516 B	Screw -----	1
42	C50043 H-025	Washer, .025 inch (.635mm) thick -----	1
-	C50043 H-021	Washer, .021 inch (.533mm) thick -----	1
-	C50043 H-029	Washer, .029 inch (.737mm) thick -----	1
43	C50036 A	Link, feed lift -----	1
44	C50036 B	Pin, link -----	1
45	22804	Screw -----	2
46	C50034 N	Bracket, feed bar thrust -----	1
47	187 A	Screw -----	2
48	C50034 L	Scraper, oil, feed bar (rear) -----	1
49	C50034 H	Guide, feed bar (left) -----	1
50	C50034 M	Guide, feed bar (right) -----	1
51	C50034 F	Holder, feed bar guide -----	1
52	C50034 K	Scraper, oil, feed bar (front) -----	1
53	C50034 AG	Seal, retainer -----	2
54	C50034 AK	Seal, oil, feed bar -----	1
55	C50034 G	Spring, oil seal -----	1
56	C50034 J	Plate, feed bar oil seal -----	1
57	22594	Screw -----	4
58	22868 C	Screw -----	2
59	C50034 AH	Holder, feed dog -----	1
60	22637 P-24	Screw -----	1
61	C50034 V	Cam, feed dog tilting -----	1
62	605 A	Screw -----	1
63	- - -	Feed Dog, See "SEWING COMBINATIONS" -----	1
64	22519 H	Screw -----	1
65	C50022 G	Shaft, feed drive -----	1



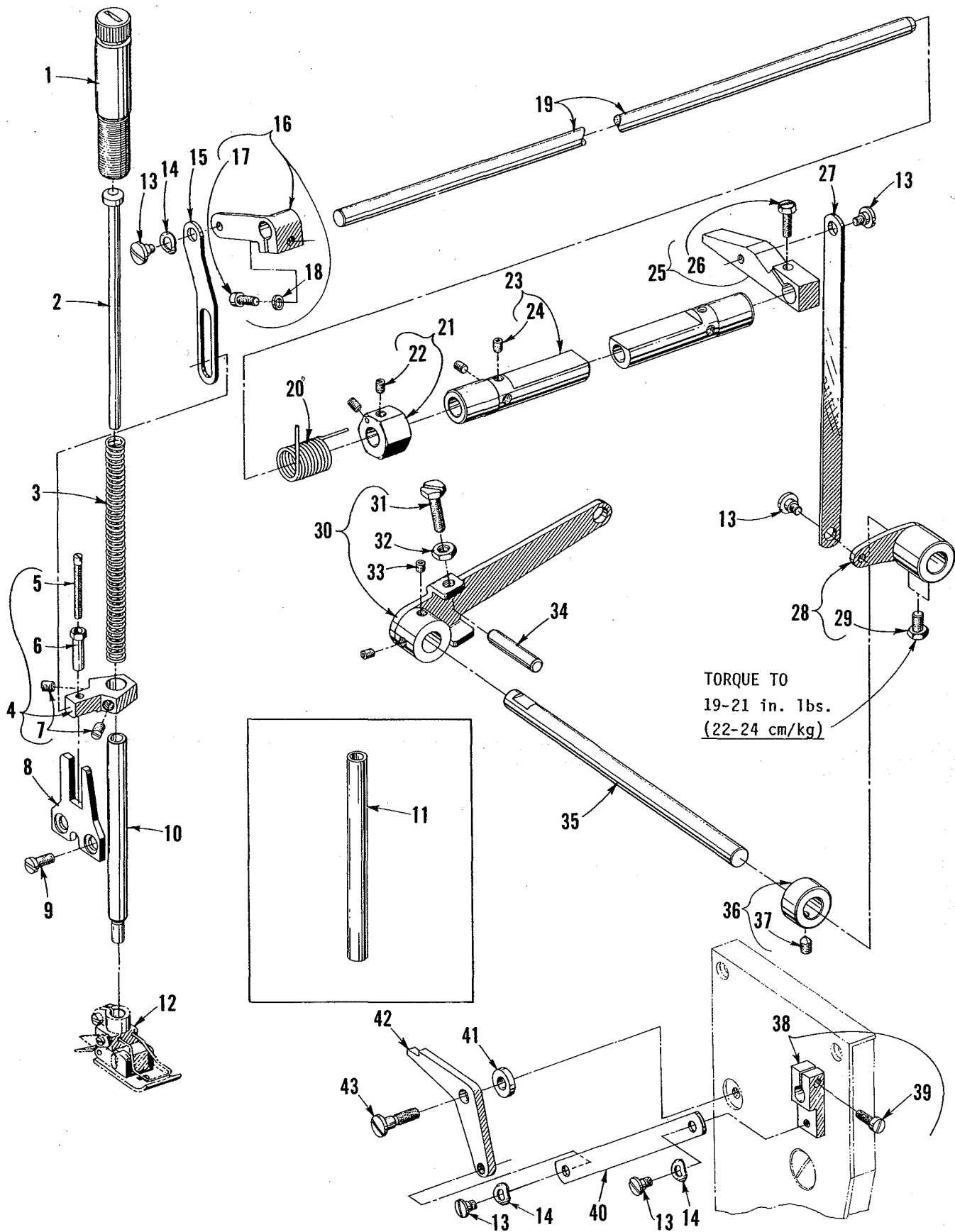
STITCH REGULATING PARTS

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Amt. Req.</u>
1	22778 A	Screw -----	1
2	C50051 X	Plug, stitch adjustment hole -----	1
3	22596 H	Screw -----	1
4	53634 C	Washer -----	1
5	C50035 AS	Washer -----	1
6	C50035 AA	Bracket, mounting -----	1
7	61434 G	Washer -----	1
8	9937	Nut -----	1
9	C50035 AB	Block, support -----	1
10	22729 AA	Screw -----	2
11	9846	Screw (required to replace screw in Ref. No. 28) ---	1
12	C50093 CH	Cap, tube for screw 9846 approx. 1/2 inch (12.7mm) -	1
13	C50035 AL	Shaft w/knob, stitch adjusting -----	1
14	22541 A	Screw -----	2
15	C50035 AP	Bracket, stitch control support -----	1
16	39198 D	Washer -----	1
17	C50035 R	Retainer, stitch length -----	2
18	C50035 V	Block, limit, stitch regulator -----	2
19	C50035 S	Screw, stitch regulating -----	2
20	C50035 H	Nut, stitch limiting -----	2
21	C50035 AN	Bracket, guide, stitch control -----	1
22	22652 B-10	Screw -----	1
23	22570 A	Screw -----	2
24	22652 B-12	Screw -----	1
25	C50035 AJ	Pin, roll, for stitch adjusting shaft -----	1
26	660-884	Spring, stitch adjusting -----	1
27	660-683	"O" Ring for feed rocker shaft bushing (right) ----	1
28	C50035	Collar, actuating -----	1
29	88 B	Screw, set -----	1
30	C50035 P	Block, stitch regulating -----	1
31	C50035 W	Lever, stitch control -----	1
32	C50035 BC	Link, stitch regulating -----	1
33	C50037 A	Ferrule -----	2
34	88 D	Screw -----	1
35	14077	Nut -----	1
36	41071 G	Nut -----	1
37	C50035 X	Indicator, stitch -----	1
38	22894 W	Screw -----	2
39	87	Screw -----	1
40	C50035 N	Spring -----	1



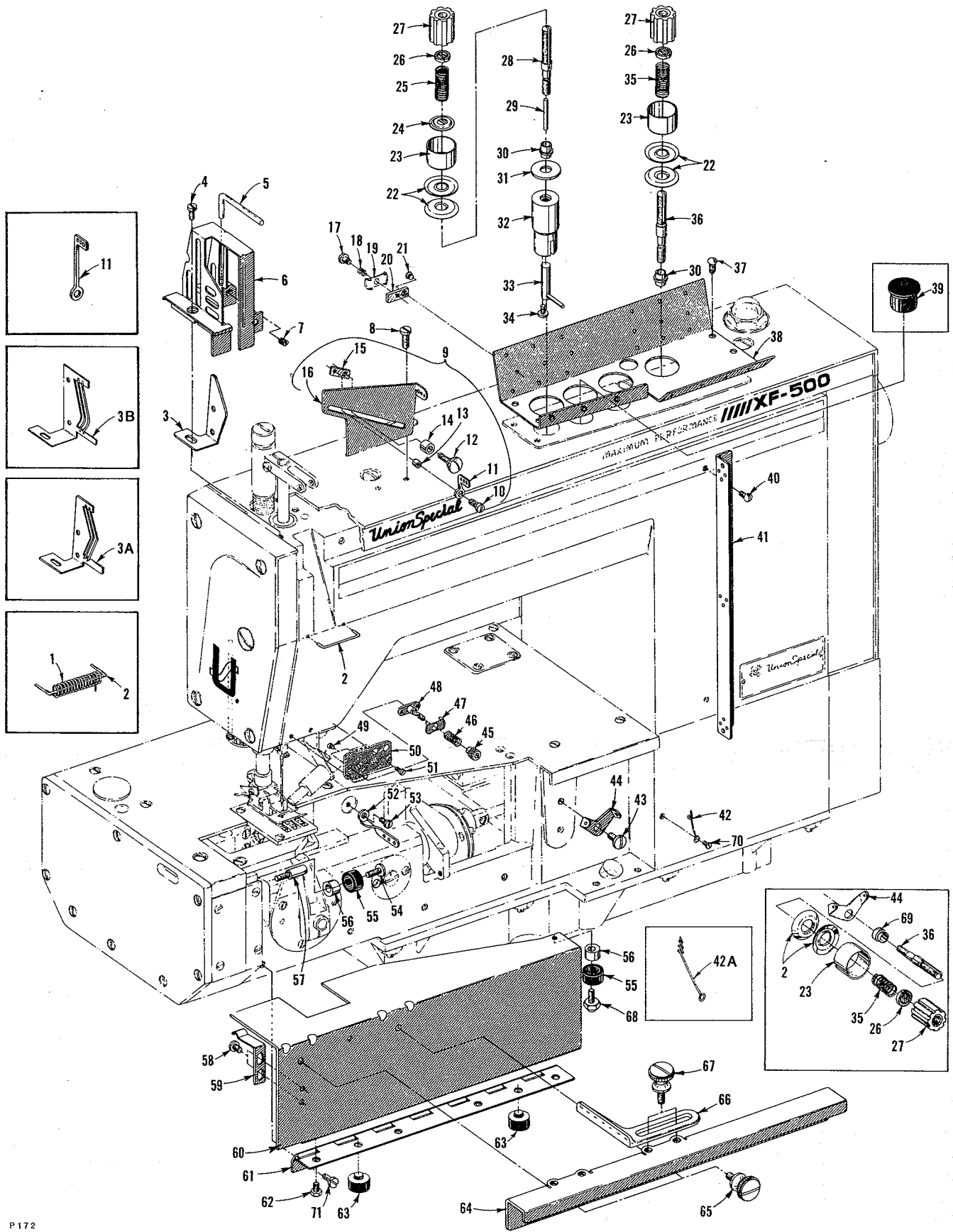
REAR NEEDLE GUARD AND PNEUMATIC STITCH SHORTENING

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Amt. Req.</u>
1	22758 K	Screw -----	1
2	C50068 U	Link Assembly, crank, rear needle guard -----	1
3	22541 D	Screw -----	2
4	C50068 Y	Plate, retaining -----	1
5	C50068 Z	Spacer -----	2
6	C50068 C	Pin, pivoting -----	1
7	C50068 B	Link, pivot, rear needle guard -----	1
8	98 A	Screw -----	1
9	22729 L	Screw -----	1
10	C50068 A	Shaft, rear needle guard -----	1
11	C50025 A	Holder, needle guard; all Styles except XF512E100HB-1, MP-12, MP-16, XF513E100HJ-8, HJ-9, HR-9, 101HR-9 and 112HR-9 -----	1
-	C50025 F	Holder, needle guard; for Styles XF512E100HB-1, MP-12, MP-16, XF513E100HJ-8, HJ-9, HR-9, 101HR-9 and 112HR-9 -----	1
12	22764	Screw, spot -----	1
13	22562 A	Screw -----	1
14	- - -	Needle Guard, See "SEWING COMBINATIONS" -----	1
15	22652 A-6	Screw -----	2
16	C50035 AW	Arm, connecting -----	1
17	C50035 AZ	Collar, adaptor -----	1
18	22552 A-16	Screw -----	1
19	C50035 AY	Adjuster, clevis -----	1
20	21756 G	Screw, adjusting -----	1
21	22743	Screw -----	1
22	89-64	Plug, pressure -----	1
23	22789 A	Screw, pivot -----	1
24	RM3211-1	Nut, lock -----	1
25	C50035 BA	Bracket, mounting -----	1
26	22640 R-40	Bolt, mounting -----	1
27	22758 E	Screw -----	2
28	C50035 AX	Bracket, hinge -----	1
29	671 A-65	Cylinder, air -----	1
30	671 F-69	Fitting, air -----	1
31	RM2997 D	Tubing, air; 1/4 inch (6.35mm) O.D. specify length ----- as req.	



PRESSER FOOT AND LIFTER LEVER PARTS

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Amt. Req.</u>
1	C50056 D	Regulator, presser bar spring -----	1
2	C50056 B	Guide, presser bar spring -----	1
3	C50056 C	Spring, presser bar; for all Styles except XF512E100HB-1, XF513E100HJ-8, HJ-9, HR-9, 101HR-9 and 112HR-9 -----	1
-	C50056 L	Spring, presser bar; for Styles XF512E100HB-1, XF513E100HJ-8, HJ-9, HR-9, 101HR-9 and 112HR-9 -----	1
4	C50056 K	Guide, presser bar -----	1
5	22840 C	Screw, adjusting -----	1
6	C50056 J	Nut, lock -----	1
7	531	Screw -----	2
8	C50067 K	Plate, presser bar guide -----	1
9	22569 C	Screw -----	2
10	C50057 E	Bar, presser; for all Styles except XF513E100HJ-8, HJ-9, HR-9, 101HR-9, 112HR-9 -----	1
11	C50057 K	Bar, presser; for Styles XF513E100HJ-8, HJ-9, HR-9, 101HR-9 and 112HR-9 -----	1
12	- - -	Presser Foot Assembly, See "SEWING COMBINATIONS" -----	1
13	22758	Screw -----	5
14	660-718	Washer, spring -----	3
15	C50067 F	Link, presser foot lift -----	1
16	C50067 G	Lever, presser foot lift (upper left) -----	1
17	22596 H	Screw -----	1
18	51854 C	Washer -----	1
19	C50022 C	Shaft, presser foot lift (upper) for all Styles except XF511E101MF, 118MF, 152MF and XF513E101HR-9 -----	1
-	C50076 C	Shaft, presser foot lift (upper) for Styles XF511E101MF, 118MF, 152MF and XF513E101HR-9 -----	1
20	C50090 N	Spring, tension release return -----	1
21	C50090 M	Collar, tension release adjusting -----	1
22	22894 P	Screw -----	2
23	C50090 J	Sleeve, tension release; for all Styles except XF512E100HB-1, MP-12, MP-16, XF513E100HJ-8, HJ-9, HR-9, 101HR-9 and 112HR-9 -----	1
-	C50090 J	Sleeve, tension release; for Styles XF512E100HB-1, MP-12, MP-16, XF513E100HJ-8, HJ-9, HR-9, 101HR-9 and 112HR-9 -----	2
24	22894 W	Screw, for all Styles except XF512E100HB-1, MP-12, MP-16, XF513E100HJ-8, HJ-9, HR-9, 101HR-9 and 112HR-9 -	2
-	22894 W	Screw, for Styles XF512E100HB-1, MP-12, MP-16, XF513E100HJ-8, HJ-9, HR-9, 101HR-9 and 112HR-9 -----	4
25	C50067 B	Lever, presser foot lifter (upper right) -----	1
26	22519 K	Screw -----	1
27	C50067	Connection, presser foot lift -----	1
28	C50067 D	Lever, presser foot lift (lower) -----	1
29	22882	Screw -----	2
30	C50067 A	Lever, presser foot lift (outer) -----	1
31	627 A	Screw -----	1
32	15037 A	Nut, locking -----	1
33	22894 C	Screw -----	2
34	667 M-14	Pin, dowel (lifter lever stop) -----	1
35	C50022 D	Shaft, presser foot lift (lower) -----	1
36	C50036 R	Collar, thrust -----	1
37	22894 L	Screw, spot -----	1
38	C50077 E	Lever, lifter -----	1
39	93	Screw -----	1
40	C50077 F	Link, connecting -----	1
41	C50077 AD	Spacer, for C50077 G -----	1
42	C50077 G	Lever, lifter (roller) -----	1
43	22557 J	Screw, shoulder -----	1

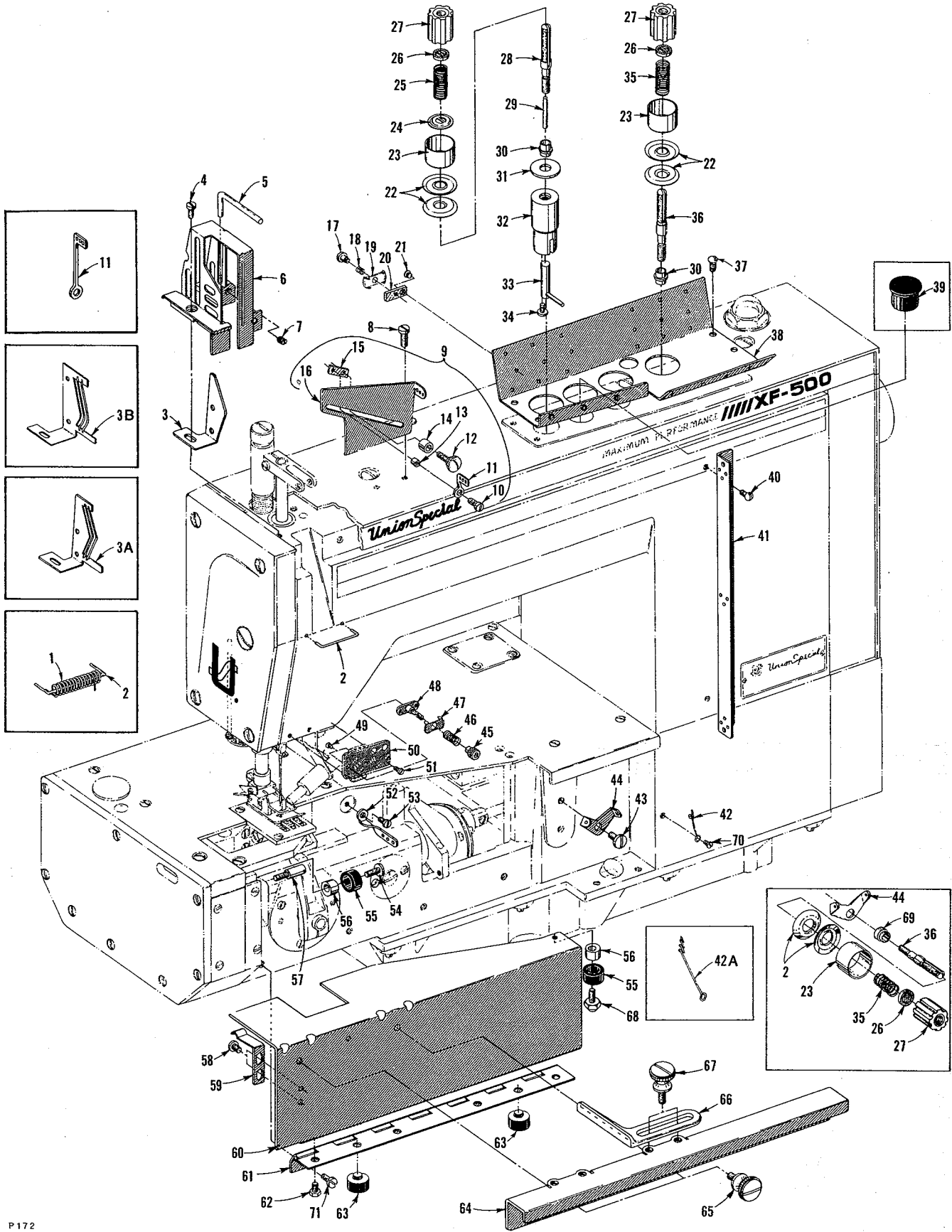


FRONT COVER AND THREAD HANDLING PARTS

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Amt. Req.</u>
1	50378 R	Wire, thread separating; for two and three needle machines -----	1
2	C50058 F	Wire, rubbing (needle thread) -----	1
3	50370	Cam, needle thread; for single needle machines -----	1
3A	50358 J	Cam, needle thread take-up; for Styles XF512E100HB-1, MP-12 and MP-16 -----	1
3B	C50070 B	Cam, needle thread take-up; for Styles XF513E100HJ-8, HJ-9, HR-9, 101HR-9 and 112HR-9 -----	1
4	22569 C	Screw -----	3
5	50370 A	Wire, strike-off (needle thread) -----	1
6	C50054 M	Guard, needle bar eyelet -----	1
7	531	Screw -----	1
8	22569 C	Screw -----	2
9	29476 PX	Thread Control Assembly, for all Styles except XF512E100HB-1, MP-12 and MP-16 -----	1
-	29476 PY	Thread Control Assembly, for Styles XF512E100HB-1, MP-12 and MP-16 -----	1
10	98 A	Screw -----	1
-	22726 L	Screw for 50358 K -----	1
11	158 A	Eyelet, adjustable -----	1
11A	50358 K	Eyelet, adjustable; for 29476 PY -----	1
12	22837	Screw -----	1
13	56358 C	Washer, guide -----	1
14	56358 D	Spacer -----	1
15	56358 B	Block, guide -----	1
16	50304 D	Plate, needle thread control -----	1
17	57 WD	Screw -----	1, 2 or 3
18	57 WC	Spring -----	1, 2 or 3
19	57 WB	Plate, needle thread nipper -----	1, 2 or 3
20	63471	Base, needle thread nipper -----	1, 2 or 3
21	18-1077	Screw, for 63471 -----	1, 2 or 3
22	109	Disc, tension -----	4, 8 or 12
23	56392 F	Shield, tension spring -----	2, 4 or 6
24	C50092 M	Washer, tension release -----	1, 2 or 3
25	51292 F-8	Spring, needle thread tension -----	1, 2 or 3
26	39592 AK	Ferrule, tension spring -----	2, 4 or 6
27	C50092 S	Nut, thread tension -----	2, 4 or 6
28	C50092 L	Post, tension (needle thread) -----	1, 2 or 3
29	C50092 J	Pin, thread tension release -----	1, 2 or 3
30	51292 A	Ferrule, tension post -----	2 or 3
31	C50092 R	Washer -----	1, 2 or 3
32	50392 B	Housing, tension assembly -----	1, 2 or 3
33	C50092 G	Pin, tension release actuating -----	1, 2 or 3
34	18-799	Screw -----	1, 2 or 3
35	51292 F-2	Spring, looper thread tension -----	1, 2 or 3
36	56392 E	Post, tension (looper thread) -----	1, 2 or 3
37	22501 A	Screw -----	4

38 thru 70

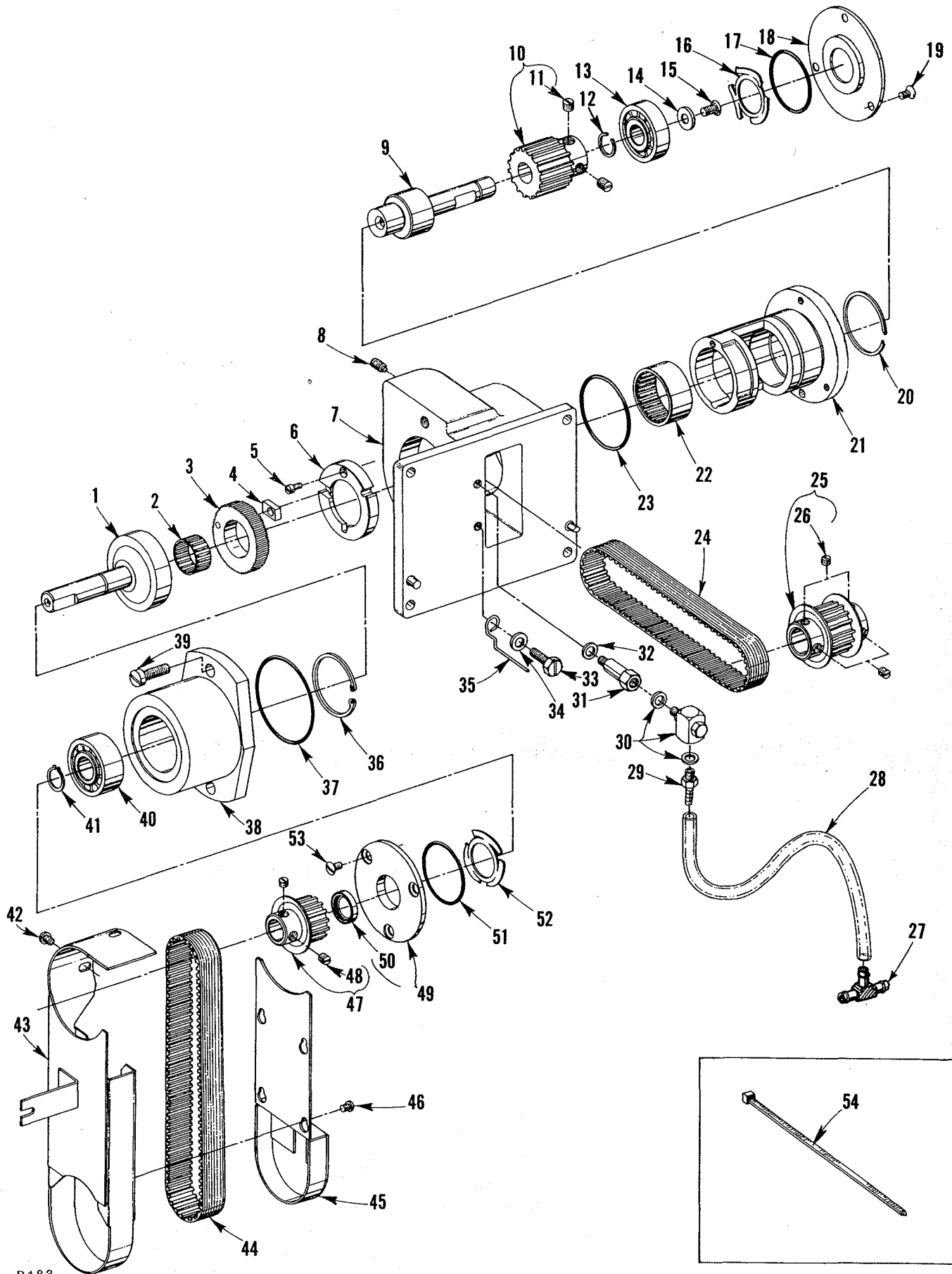
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FRONT COVER AND THREAD HANDLING PARTS

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Amt. Req.</u>
1 thru 37		See Preceding Page	
38	C50092 N	Guide, thread -----	1
39	C50082 AH	Plug, top cover; for Styles XF512E100HB-1, MP-12 and MP-16 -----	1
40	22635 G-16	Screw -----	2
41	C50058 A	Eyelet, looper thread -----	1
42	39868 H	Eyelet, looper thread; for all Styles except XF512E100HB-1, MP-12, MP-16, XF513E100HJ-8, HJ-9, HR-9, 101HR-9 and 112HR-9 -----	1
42A	52958 G	Eyelet, looper thread; for Styles XF512E100HB-1, MP-12, MP-16, XF513E100HJ-8, HJ-9, HR-9, 101HR-9 and 112HR-9 -----	1
43	22872	Screw, for all Styles except XF512E100HB-1, MP-12, MP-16, XF513E100HJ-8, HJ-9, HR-9, 101HR-9 and 112HR-9 -----	1
44	51292 D	Eyelet, looper thread ----- 1, 2 or 3	
45	51959 D	Nut -----	1
46	15438 C	Spring -----	1
47	57 WB	Plate, spring -----	1
48	C50092 U	Post, nipper base -----	1
49	22716 A	Screw -----	2
50	C50044 T	Plate, mounting thread guide -----	1
51	605 A	Screw -----	2
52	56958	Eyelet, looper thread -----	1
53	22520	Screw -----	1
54	22569 J	Screw -----	1
55	C50093 BR	Bumper, rubber -----	2
56	C50082 W	Stop, adjustable -----	2
57	22799 AH	Stud, latch spring -----	1
58	22513	Screw -----	2
59	C50032	Spring, latch -----	1
60	C50082 Y	Cover, front; for all Styles except XF512E100HB-1, MP-12, MP-16, XF513E100HJ-8, HJ-9, HR-9, 101HR-9 and 112HR-9 -----	1
-	C50082 Z	Cover, front; for Styles XF512E100HB-1, MP-12, MP-16, XF513E100HJ-8, HJ-9, HR-9, 101HR-9 and 112HR-9 -----	1
61	C50078 C	Hinge, front -----	1
62	22792 A	Screw -----	4
63	660-731	Bumper, rubber -----	2
64	C50001 D	Extension, cloth plate -----	1
65	25 E	Screw -----	2
66	24	Guide, edge; for all Styles except XF512E100HB-1, MP-12, MP-16, XF513E100HJ-8, HJ-9, HR-9, 101HR-9 and 112HR-9 -----	1
67	25	Screw, for all Styles except XF512E100HB-1, MP-12, MP-16, XF513E100HJ-8, HJ-9, HR-9, 101HR-9 and 112HR-9 -----	2
68	C50032 C	Screw, cover latch -----	1
69	51192 B	Ferrule, tension post; for Styles XF512E100HB-1, MP-12, MP-16, XF513E100HJ-8, HJ-9, HR-9, 101HR-9 and 112HR-9 -----	2 or 3
70	22585 A	Screw -----	1
71	22569 D	Screw -----	4

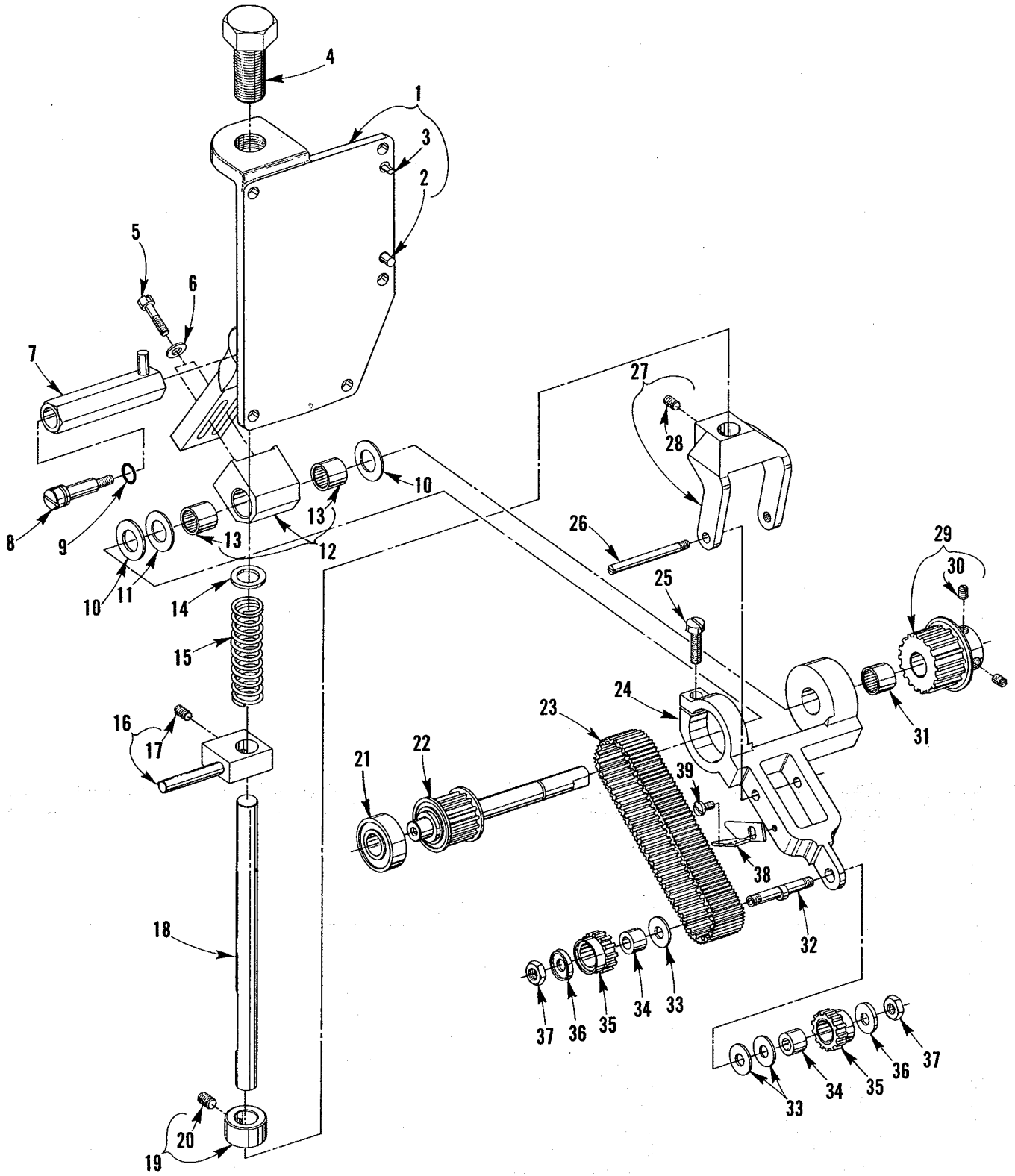


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PULLER DRIVE

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Amt. Req.</u>
1	C50078 L	Gear, internal -----	1
2	660-889	Bearing, cage -----	1
3	C50078 M	Gear -----	1
4	C50078 J	Block, slide -----	1
5	22593	Screw -----	1
6	C50078 N	Ring, guide -----	1
7	C50078 G	Housing, bearing -----	1
8	22894 J	Screw -----	1
9	C50022 L	Shaft, eccentric drive -----	1
10	C50042 AC-16	Sprocket -----	1
11	98	Screw -----	2
12	660-891 C	Ring, retaining -----	1
13	660-888	Bearing, ball -----	1
14	59451 F	Washer -----	1
15	22574 D	Screw (left hand threads) -----	1
16	660-914	Spring, finger -----	1
17	660-886 A	"O" Ring -----	1
18	C50082 AR	Cover -----	1
19	22524	Screw -----	3
20	661-70 A	Ring, snap -----	1
21	C50078 P	Housing, eccentric -----	1
22	660-892 C	Bearing -----	1
23	660-886 C	"O" Ring -----	1
24	C50042 AF	Belt, timing -----	1
25	C50042 AB-16	Sprocket -----	1
26	98	Screw -----	4
27	671 F-41	Tee, union -----	1
28	C50094 AF	Tube, oil -----	1
29	671 F-19	Connector -----	1
30	RM3633-1	Fitting, oil -----	1
31	671 F-64	Fitting, extension -----	1
32	RM2964 B	Washer -----	1
33	22824 B	Screw -----	1
34	53634 C	Washer -----	1
35	C50093 CS	Protector, tube -----	1
36	660-891 B	Ring, snap -----	1
37	660-886 B	"O" Ring -----	1
38	C50078 H	Housing, bearing -----	1
39	136	Screw -----	2
40	660-890	Bearing, ball -----	1
41	660-918	Ring, retaining -----	1
42	22825	Screw -----	3
43	21375 BX	Guard, belt -----	1
44	C50042 AG	Belt, drive -----	1
45	21375 BY	Cover -----	1
46	604	Screw -----	4
47	C50042 Z-13	Sprocket, puller driving (See sprocket chart for stitch length combinations) -----	1
48	22560 B	Screw -----	2
49	C50082 AP	Cover -----	1
50	660-893	Seal, lip -----	1
51	660-886 A	"O" Ring -----	1
52	660-914	Spring, finger -----	1
53	22524	Screw -----	3
54	670 E-2	Tie, cable; to secure Ref. No. 28 -----	1

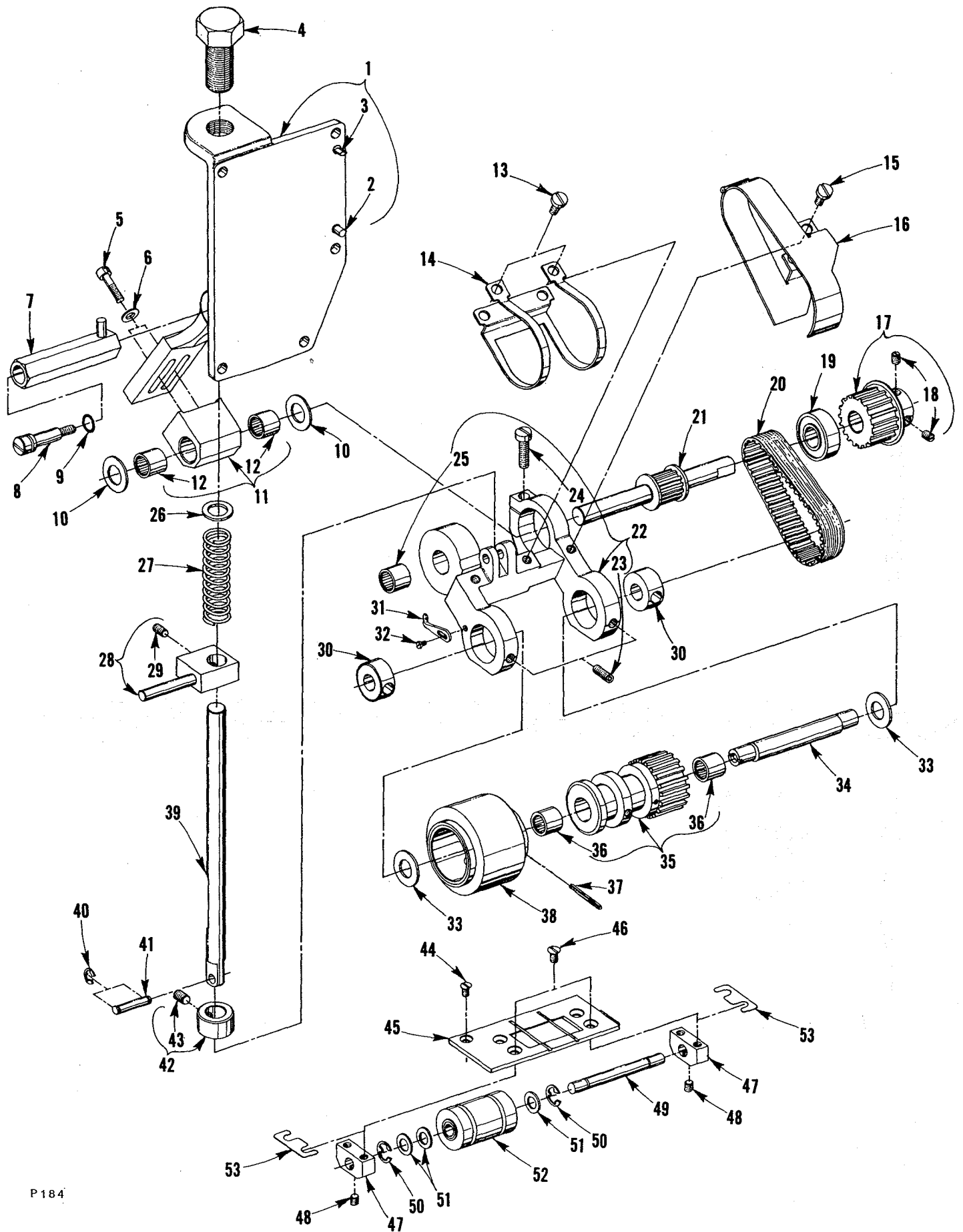
NOTE: Ref. No. 1-24, 36-41 and 49-53 can be ordered under Assembly No. 29476 PK.



BELT PULLER

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Amt. Req.</u>
1	C50078 AE	Bracket, mounting -----	1
2	667 C-8	Pin, dowel -----	1
3	51-716 BLK	Pin, locating -----	1
4	C50077 D	Screw, adjusting -----	1
5	88 F	Screw -----	2
6	8372 A	Washer -----	2
7	C50077 C	Sleeve, stop -----	1
8	C50077 B	Stud, screw -----	1
9	660-220	"O" Ring -----	1
10	C50077 M	Washer -----	2
11	C50077 J	Washer -----	1
12	C50078 AC	Plate, binder -----	1
13	660-892 A	Bearing, needle -----	2
14	51242 L	Washer -----	1
15	28633 L	Spring -----	1
16	C50077 H	Collar, lifting -----	1
17	22894 AM	Screw -----	1
18	C50078 Y	Rod, lifter -----	1
19	C50036 R	Collar, stop -----	1
20	98	Screw, set (required to replace screw in Ref. No. 19)	1
21	660-887	Bearing, ball -----	1
22	C50078 AB	Shaft, drive -----	1
23	C50042 AK	Belt, material puller -----	1
24	C50078 W	Yoke, roller -----	1
25	136	Screw -----	1
26	22570 E	Screw -----	1
27	C50078 AA	Lifter -----	1
28	22894 R	Screw -----	1
29	C50042 Z-16	Sprocket, puller driven (see sprocket chart for stitch length combinations) -----	1
30	22560 B	Screw -----	2
31	660-892 B	Bearing -----	1
32	C50078 X	Shaft, eccentric -----	1
33	C50077 N	Washer -----	3
34	C50037 D	Ferrule -----	2
35	C50042 AJ-12	Sprocket -----	2
36	C50063 Y	Washer -----	2
37	18	Nut -----	2
38	52930 AC	Knife, chain cutting -----	1
39	604	Screw -----	1

Ref No. 1 thru 39 can be ordered under Assembly No. 29476 PL.



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ROLLER PULLER

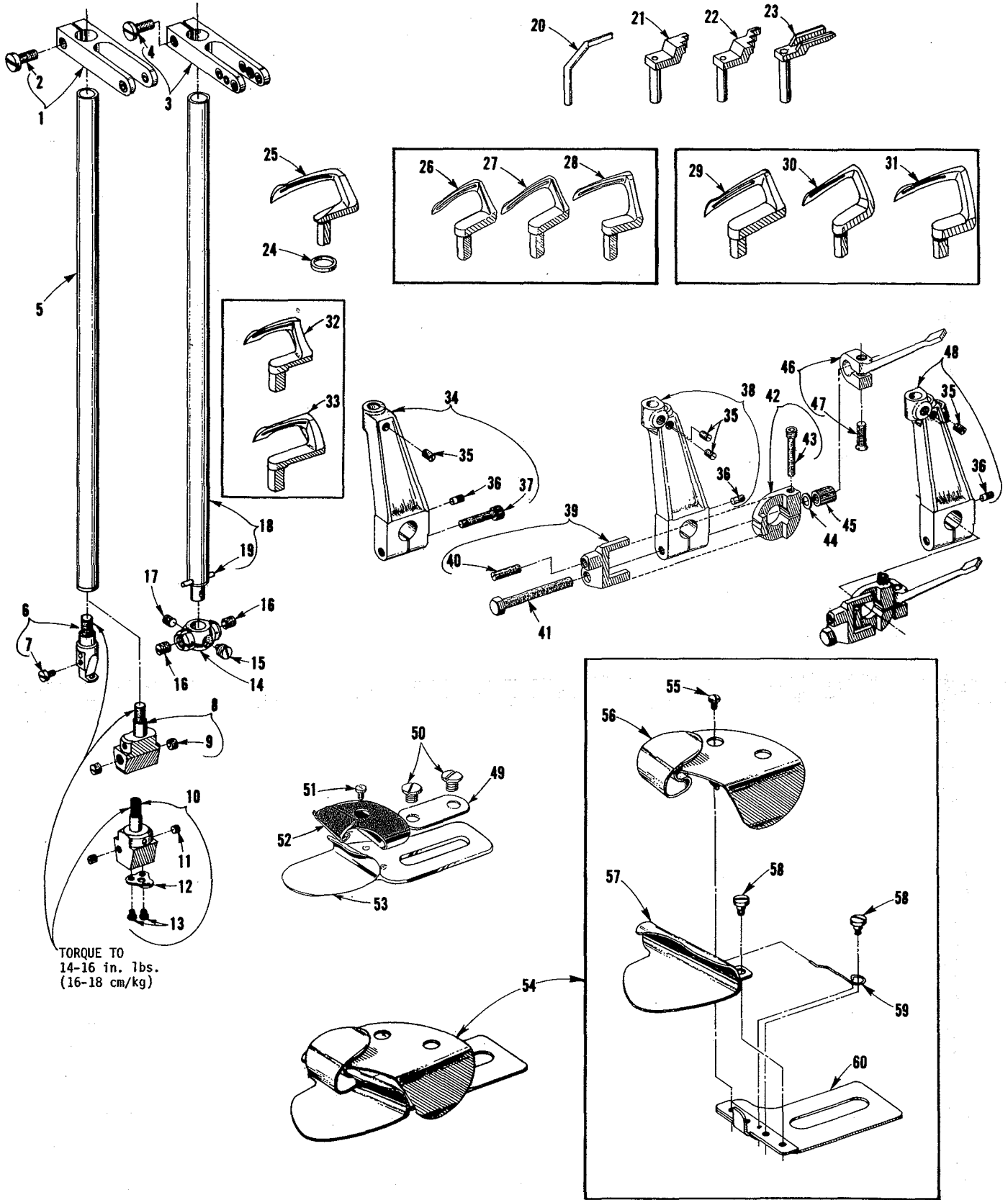
<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Amt. Req.</u>
1	C50078 F	Bracket, mounting -----	1
2	667 C-8	Pin, dowel -----	1
3	51-716 BLK	Pin, locating -----	1
4	C50077 D	Screw, adjusting -----	1
5	88 F	Screw -----	2
6	8372 A	Washer -----	2
7	C50077 C	Sleeve, stop -----	1
8	C50077 B	Stud, screw -----	1
9	660-220	"0" Ring -----	1
10	C50077 J	Washer -----	2
11	C50078 S	Block, mounting -----	1
12	660-892 A	Bearing, needle -----	2
13	94	Screw -----	4
14	C50078 V	Guard, feed roller -----	1
15	94	Screw -----	2
16	21375 BW	Guard, belt -----	1
17	C50042 Z-18	Sprocket, puller driven (see sprocket chart for stitch length combinations) -----	1
18	22560 B	Screw -----	2
19	660-887	Bearing, ball -----	1
20	C50042 AE	Belt, timing -----	1
21	C50022 K	Shaft, drive -----	1
22	C50078 E	Yoke, feed roller -----	1
23	22894 E	Screw -----	2
24	136	Screw -----	1
25	660-892 B	Bearing, needle -----	1
26	51242 L	Washer -----	1
27	28633 L	Spring -----	1
28	C50077 H	Collar, puller lifting -----	1
29	22894 AM	Screw -----	1
30	C50078 T	Block, thrust -----	1
31	39656 A	Knife, chain cutting -----	1
32	604	Screw -----	1
33	C50077 K	Washer -----	2
34	C50022 N	Shaft, upper roller -----	1
35	C50042 AL	Sprocket, drive -----	1
36	660-892 A	Bearing, needle -----	2
37	660-219 L	Pin, roll -----	1
38	C50075 B	Roller, upper (Smooth Polyurethane) -----	1
39	C50077	Shaft, puller lifter -----	1
40	660-416	Ring, retaining -----	2
41	C50036 AJ	Pin, roller lifter -----	1
42	C50036 R	Collar, stop -----	1
43	98	Screw, set (required to replace screw in Ref. No. 42) -----	1

Ref. Nos. 1 thru 43 to be ordered under Assembly No. 29476 PH with Smooth Polyurethane Roller and 29476 PW with Bakelite Saw Tooth Roller.

44	AS22 D	Screw -----	1
45	C50078 R	Plate, feed -----	1
46	22526	Screw -----	4
47	C50078 U	Block, bearing -----	2
48	22894 W	Screw -----	2
49	C50074	Shaft -----	1
50	660-330	Ring, retaining -----	2
51	6042 A	Washer -----	3
52	C50076	Roller, lower (Smooth Polyurethane) -----	1
-	50375 C	Roller, lower (Steel Diamond Knurled) -----	1
-	50375 D	Roller, lower (Bakelite Saw Tooth) -----	1
53	C50078 AF-15	Shim -----	as req.
-	C50078 AF-10	Shim -----	as req.

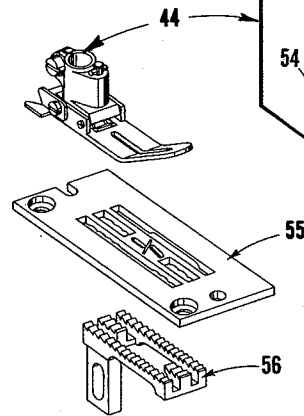
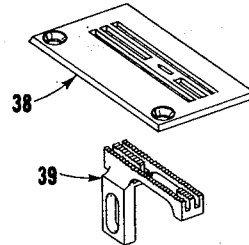
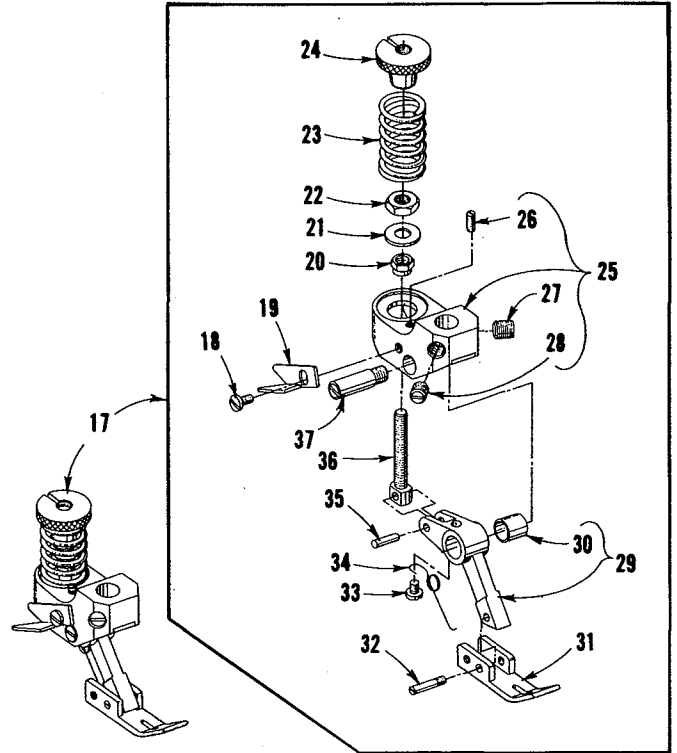
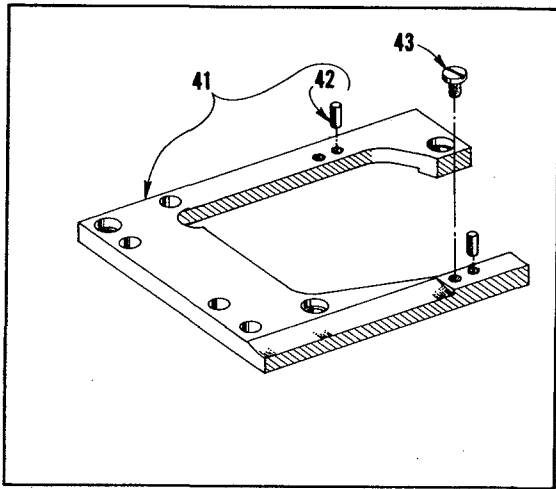
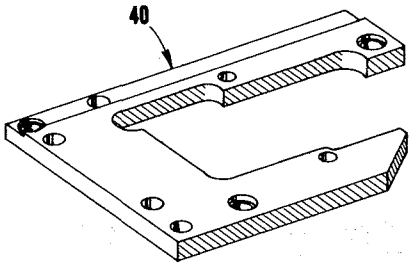
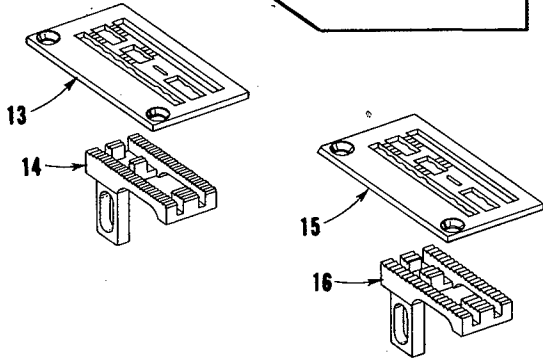
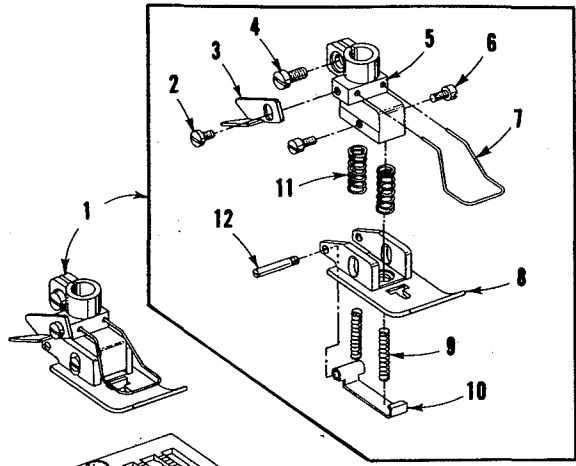
Ref Nos. 44 thru 52 can be ordered under Assembly No. 29476 PJ with Smooth Polyurethane Roller and 29476 PV with Bakelite Saw Tooth Roller.

-	50375 A	Roller, upper (Steel Diamond Knurled) -----	1
-	50375 B	Roller, upper (Bakelite Saw Tooth) -----	1
-	50375	Roller, upper (Steel Saw Tooth) -----	1



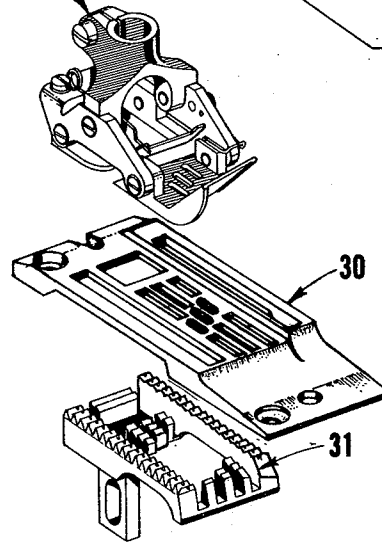
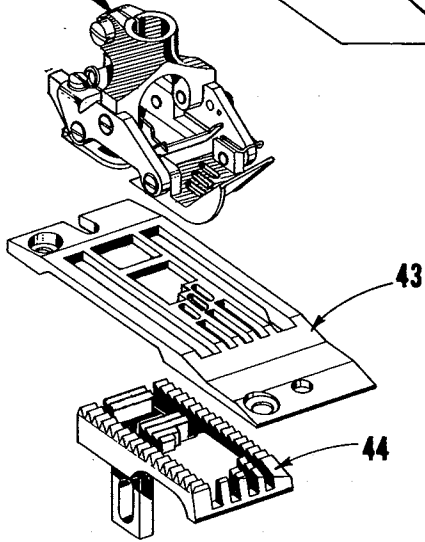
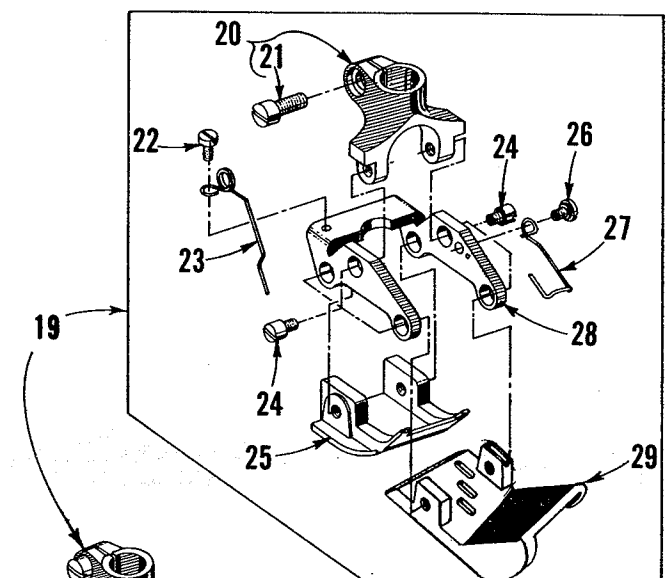
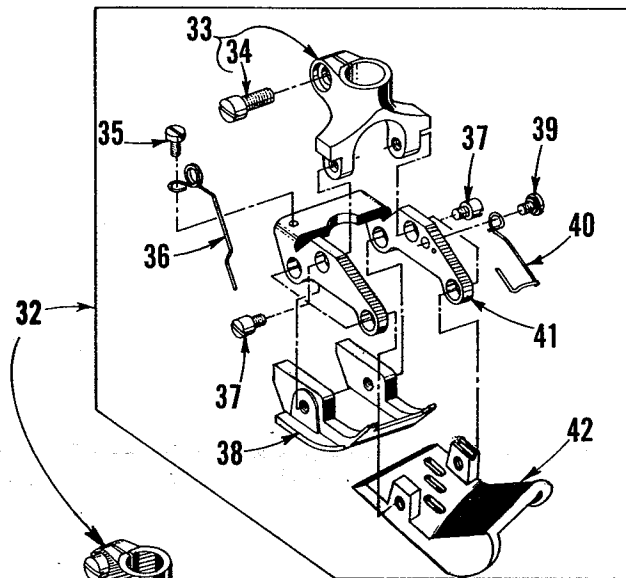
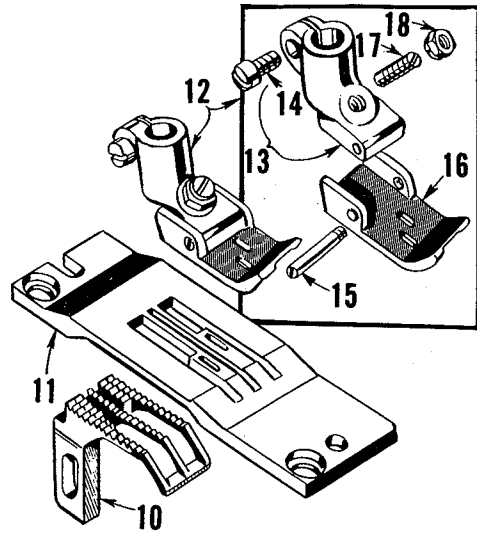
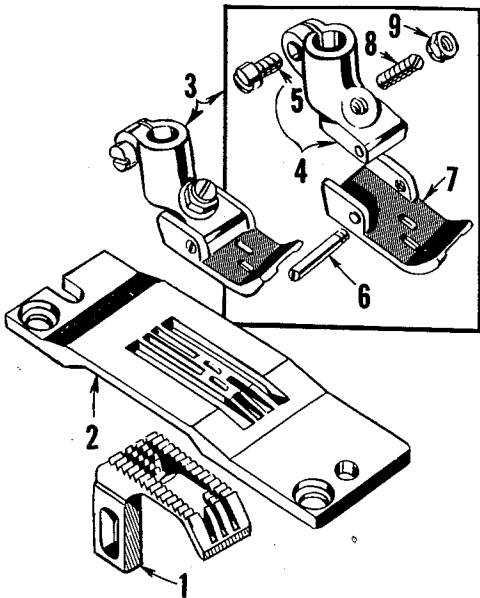
SEWING COMBINATIONS

Ref. No.	Part No.	Description	Amt. Req.
1	C50058 H	Eyelet, needle bar; for single needle machines -----	1
2	18-71	Screw -----	1
3	C50058 K	Eyelet, needle bar; for two and three needle machines -----	1
4	18-71	Screw -----	1
5	C50017 C	Bar, needle; for single and two needle machines -----	1
6	C50018 D	Head, needle; for single needle machines -----	1
7	22768 A	Screw -----	1
8	C50018 L-12	Head, needle; for Style XF512E100MP-12 -----	1
-	C50018 L-16	Head, needle; for Style XF512E100MP-16 -----	1
9	88 B	Screw -----	2
10	50318 C	Head, needle; for Style XF512E100HB-1 -----	1
11	22743	Screw, needle -----	2
12	50358 G	Guide, thread -----	1
13	73 A	Screw -----	2
14	35818 N-8	Head, needle; for Style XF513E100HJ-8 -----	1
-	C50018 B-9	Head, needle; for Styles XF513E100HJ-9, HR-9, 101HR-9, and 112HR-9 -----	1
15	22752	Screw, for center needle -----	1
16	22580	Screw, needle -----	2
17	89	Screw, spot -----	1
18	C50017 A	Bar, needle; for three needle machines -----	1
19	50 J-26	Pin, stop -----	1
20	C50025	Guard, needle; for single needle machines -----	1
21	C50025 N	Guard, needle; for Styles XF512E100MP-12 and MP-16 -----	1
22	C50025 E	Guard, needle; for three needle machines -----	1
23	50325 K	Guard, needle; for Style XF512E100HB-1 -----	1
24	21210	Collar, looper -----	1
25	50390 D	Looper, for single needle machines -----	1
26	51408-12	Looper, front; for Style XF512E100MP-12 -----	1
27	51408-16	Looper, front; for Style XF512E100MP-16 -----	1
28	51409	Looper, back; for Styles XF512E100MP-12 and MP-16 -----	1
29	51908 B-9	Looper, front; for Styles XF513E100HJ-9, HR-9, 101HR-9 and 112HR-9 -----	1
-	51908 B-8	Looper, front; for Style XF513E100HJ-8 -----	1
30	51909 C	Looper, middle; for all three needle machines -----	1
31	51909 D-9	Looper, back; for Styles XF513E100HJ-9, HR-9, 101HR-9 and 112HR-9 -----	1
-	51909 D-8	Looper, back; for Style XF513E100HJ-8 -----	1
32	51509 C	Looper, back; for Style XF512E100HB-1 -----	1
33	51508 G-1	Looper, front; for Style XF512E100HB-1 -----	1
34	C50013	Holder, looper; for single needle machines -----	1
35	22565 X	Screw, set -----	1, 2 or 3
36	22785	Screw, adjusting -----	1
37	22562 B-10	Screw, binder -----	1
38	C50013 A	Holder, looper; for Styles XF512E100MP-12 and MP-16 -----	1
-	C50013 D	Holder, looper; for Style XF512E100HB-1 -----	1
39	C50041 G	Stop, for two and three needle machines -----	1
40	C50041 F	Spring, plunger -----	1
41	22881 C	Screw, for C50041 G (two and three needle machines) -----	1
42	C50041 H	Collar, stop; for two and three needle machines -----	1
43	22652 J-10	Screw -----	1
44	53634 C	Washer, looper carrier; for two and three needle machines -----	1
45	C50041 E	Lock, looper carrier; for two and three needle machines -----	1
46	C50041 D	Lever, release; for two and three needle machines -----	1
47	538 A	Screw -----	1
48	C50013 B	Holder, looper; for three needle machines -----	1
49	23425 V	Plate, washer -----	1
50	25 C	Screw -----	2
51	28	Screw -----	1
52	23421 U-12-1/16	Scroll, upper for Style XF512E100MP-12 -----	1
-	23421 U-16-1/16	Scroll, upper for Style XF512E100MP-16 -----	1
-	23421 U-18-3/32	Scroll, upper for Style XF513E100HJ-8 -----	1
-	23421 U-18-3/32	Scroll, upper for Style XF513E100HJ-9 -----	1
53	23422 U-1/16	Lower Scroll and Base for Styles XF512E100MP-12 and MP-16 -----	1
-	23422 BZ-3/32	Lower Scroll and Base for Styles XF513E100HJ-8 and HJ-9 -----	1
54	23420 S-9-1/8	Folder Assembly for Styles XF513E100HR-9, 101HR-9 and 112HR-9 -----	1
55	28	Screw -----	1
56	23421 S-9-1/8	Scroll, upper -----	1
57	23422 AY-18-1/8	Scroll, lower -----	1
58	22760 A	Screw -----	2
59	23424 S	Spring -----	1
60	23423 S	Base -----	1



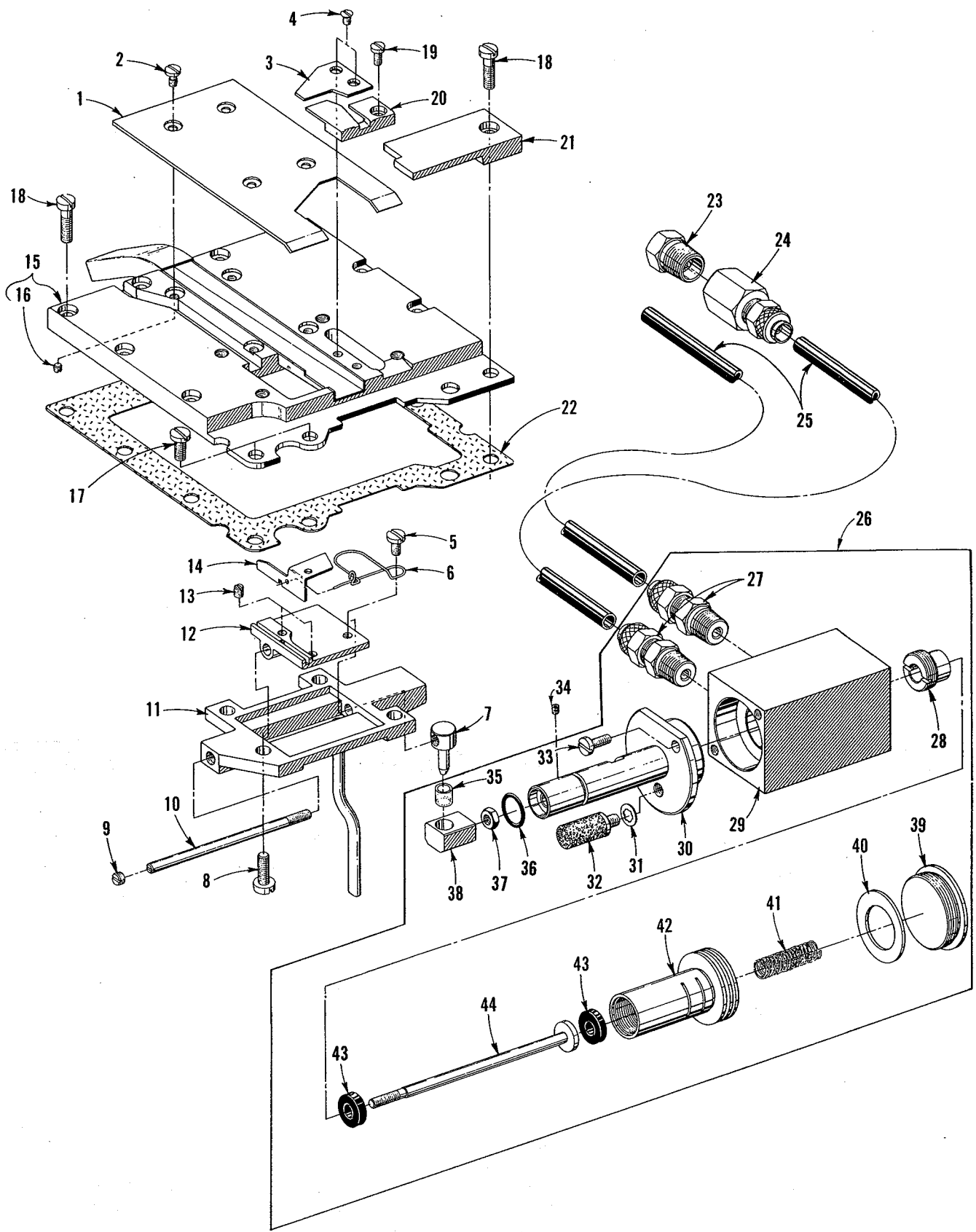
SEWING COMBINATIONS

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Amt. Req.</u>
1	C50020	Presser Foot Assembly, for Styles XF511B100MF, XF511E101MF, 118MF, 152MF, XF511H100MF, 112MF, 100MG, 112MG and 151MF -----	1
2	604	Screw -----	1
3	52930 AC	Knife, chain cutter -----	1
4	22562	Screw -----	1
5	C50030	Shank, presser foot -----	1
6	22784 M	Screw -----	2
7	C50031	Guard, finger -----	1
8	C50030 A	Bottom, presser foot -----	1
9	C50030 D	Spring -----	2
10	C50030 B	Section, yielding -----	1
11	C50030 C	Spring -----	2
12	22799 B	Screw, hinge -----	1
13	50324	Throat Plate, for Styles XF511B100MF, XF511E101MF, 118MF and XF511H100MF -----	1
-	C50024 B	Throat Plate, for Styles XF511E152MF, XF511H112MF and 151MF -----	1
14	C50005 F	Feed Dog, for Styles XF511B100MF, XF511E101MF, 118MF, 152MF, XF511H100MF, 112MF and 152MF -----	1
15	C50024 D	Throat Plate, for Style XF511H100MG -----	1
-	C50024 E	Throat Plate, for Style XF511H112MG -----	1
16	C50005 G	Feed Dog, for Styles XF511H100MG and 112MG -----	1
17	56320 E	Presser Foot Assembly, for Style XF511H100MAW -----	1
18	604	Screw -----	1
19	52930 AC	Knife, chain cutting -----	1
20	51430 F	Nut -----	1
21	56330 AU	Washer -----	1
22	41071 G	Nut -----	1
23	56330 AD	Spring -----	1
24	56330 AH	Nut, pressure regulating -----	1
25	56330 AK	Yoke -----	1
26	22785	Screw -----	1
27	22560 B	Screw -----	1
28	88	Screw -----	1
29	56330 AV	Link, presser foot -----	1
30	56330 AP	Bushing -----	1
31	56330 AW	Bottom, presser foot -----	1
32	22799 G	Screw -----	1
33	73 A	Screw -----	1
34	56330 AX	Spring, tilting -----	1
35	56330 AJ	Pin, hinge -----	1
36	56330 AG	Screw, connection -----	1
37	56330 AF	Screw, hinge -----	1
38	C56324 C	Throat Plate, for Style XF511H100MAW -----	1
39	56305 C	Feed Dog, for Style XF511H100MAW -----	1
40	C50080 A	Support, throat plate; for Styles XF511E101MF, 118MF, XF511H100MF, MG and MAW -----	1
-	C50080 AA	Support, throat plate; for Styles XF511E152MF, XF511H112MF, 112MG and 151MF -----	1
-	C50080 AB	Support, throat plate; for Style XF511B100MF -----	1
41	C50080	Support, throat plate; for Styles XF512E100HB-1, MP-12, MP-16, XF513E100HJ-8, HJ-9 and HR-9 -----	1
-	C50080 C	Support, throat plate; for Styles XF513E101HR-9 and 112HR-9 -----	1
42	51280 K	Pin, dowel -----	2
43	22570	Screw -----	2
44	56520	Presser Foot Assembly, for Style XF512E100HB-1 -----	1
45	51530 D	Shank, presser foot -----	1
46	91	Screw -----	1
47	51530 G	Spring -----	1
48	1740	Pin -----	1
49	51530 F	Plunger -----	1
50	56530 A	Section, yielding -----	1
51	56530	Bottom, presser foot -----	1
52	22799 E	Screw, hinge -----	1
53	52930 AC	Knife, chain cutting -----	1
54	91 A	Screw -----	1
55	56524 B-1	Throat Plate, for Style XF512E100HB-1 -----	1
56	56505	Feed Dog, for Style XF512E100HB-1 -----	1



SEWING COMBINATIONS

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Amt. Req.</u>
1	51405 A-10	Feed Dog, for Style XF512E100MP-12 -----	1
2	51424 A-12	Throat Plate, for Style XF512E100MP-12 -----	1
3	51420-12	Presser Foot Assembly, for Style XF512E100MP-12 -----	1
4	51430 D	Presser Foot Shank -----	1
5	91	Screw -----	1
6	22799 B	Screw, hinge -----	1
7	51430 A-12	Presser Foot Bottom -----	1
8	22840 A	Screw, adjusting -----	1
9	51430 F	Nut, adjusting -----	1
10	51405-16	Feed Dog, for Style XF512E100MP-16 -----	1
11	C51424-16	Throat Plate, for Style XF512E100MP-16 -----	1
12	51420-16	Presser Foot Assembly for Style XF512E100MP-16 -----	1
13	51430 D	Presser Foot Shank -----	1
14	91	Screw -----	1
15	22799 B	Screw, hinge -----	1
16	51430 A-16	Presser Foot Bottom -----	1
17	22840 A	Screw, adjusting -----	1
18	51430 F	Nut, adjusting -----	1
19	56920 R-9	Presser Foot Assembly, for Styles XF513E100HR-9, 101HR-9 and 112HR-9 -----	1
20	35830 B	Presser Foot Shank -----	1
21	91 D	Screw -----	1
22	73 A	Screw -----	1
23	35830 H	Spring -----	1
24	22845 A	Screw -----	6
25	56930 B	Presser Foot Bottom (rear section) -----	1
26	22599	Screw -----	1
27	35830 K	Spring -----	1
28	35830 C	Yoke -----	1
29	35830 R-9	Presser Foot Bottom (front section) -----	1
30	C56924 R-9	Throat Plate, for Styles XF513E100HR-9 and 101HR-9 ----	1
-	C50024 Y-9	Throat Plate, for Style XF513E112HR-9 -----	1
31	56905 R-9	Feed Dog, for Styles XF513E100HR-9, 101HR-9 and 112HR-9 -----	1
32	50320 M-8	Presser Foot Assembly, for Style XF513E100HJ-8 -----	1
-	56920 A-9	Presser Foot Assembly, for Style XF513E100HJ-9 -----	1
33	35830 B	Presser Foot Shank -----	1
34	91 D	Screw -----	1
35	73 A	Screw -----	1
36	35830 H	Spring -----	1
37	22845 A	Screw -----	6
38	50330 BF-8	Presser Foot Bottom (rear section) for Style XF513E100HJ-8 -----	1
-	56930	Presser Foot Bottom (rear section) for Style XF513E100HJ-9 -----	1
39	22599	Screw -----	1
40	35830 K	Spring -----	1
41	35830 C	Yoke -----	1
42	35830 R-8	Presser Foot Bottom (front section) for Style XF513E100HJ-8 -----	1
-	35830 R-9	Presser Foot Bottom (front section) for Style XF513E100HJ-9 -----	1
43	50324 N-8	Throat Plate, for Style XF513E100HJ-8 -----	1
-	C56924 A-9	Throat Plate, for Style XF513E100HJ-9 -----	1
44	56905 A-9	Feed Dog, for Styles XF513E100HJ-8 and XF513E100HJ-9 --	1

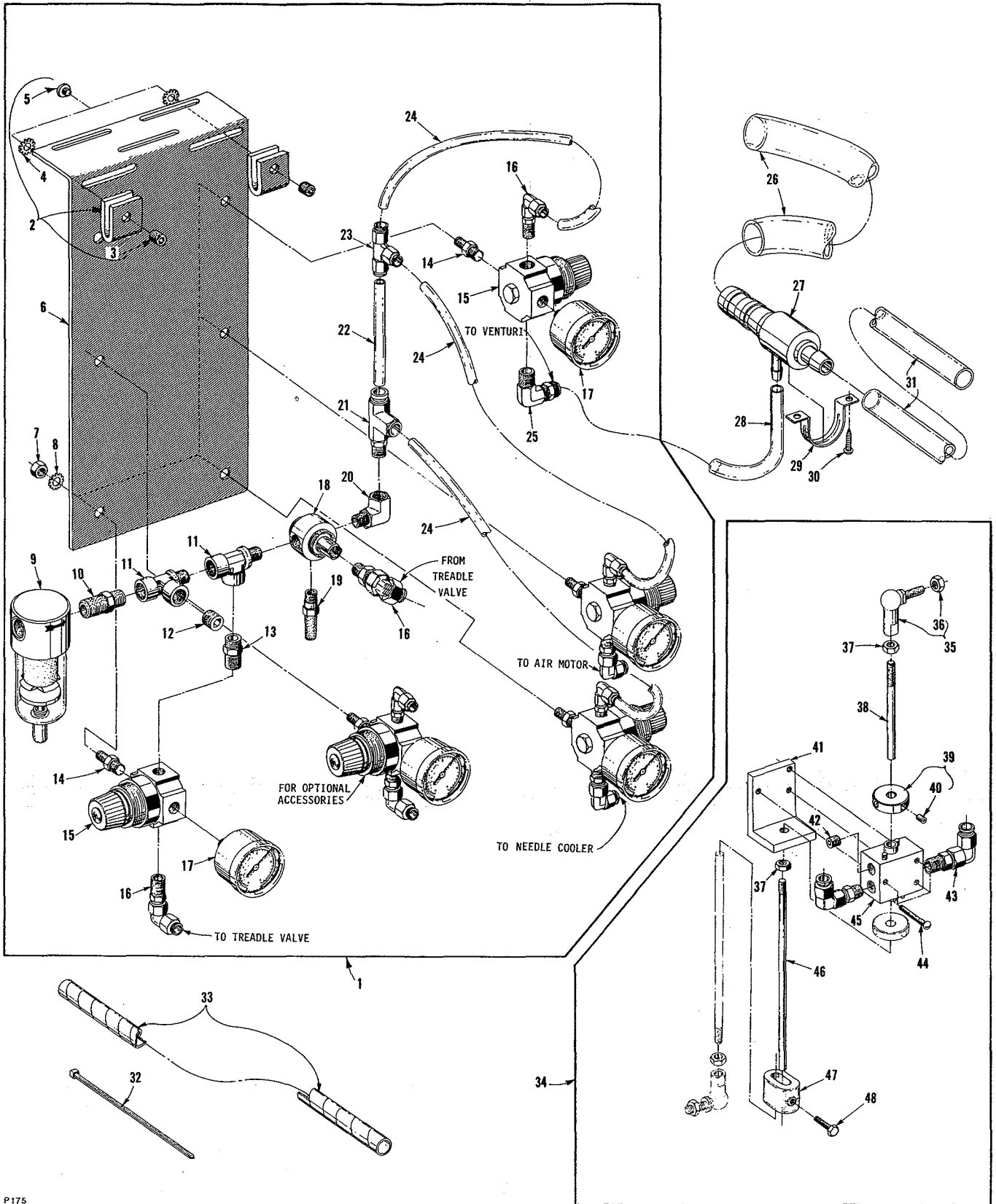


POWER "AIR-KLIPP" CHAIN CUTTER AND RELATED PARTS
 (Styles XF511H112MF, 112MG, 151MF, XF511E152MF and XF513E112HR-9)

Ref. No.	Part No.	Description	Amt. Req.
1	99679 SG	Cover, suction tube; for all Styles except XF513E112HR-9 -----	1
*-	99679 SH	Cover, suction tube; for Style XF513E112HR-9 -----	1
2	99312 A	Screw -----	4
3	99670 SH	Knife, upper -----	1
4	77 K	Screw -----	2
5	357	Screw -----	1
6	99697 SA	Spring, knife -----	1
7	99672 SB	Pin, coupling -----	1
8	93	Screw -----	4
9	22560	Screw -----	1
10	99672 SA	Rod, knife drive -----	1
11	99691 SA	Housing -----	1
12	99671 SA	Holder, knife -----	1
13	99346 T	Screw -----	2
14	99669 K	Knife, lower -----	1
15	99679 SA	Plate, cloth (rear) for all Styles except XF513E112HR-9 ----	1
*-	99679 SB	Plate, cloth (rear) for Style XF513E112HR-9 -----	1
16	28 B	Screw -----	4
17	22569 G	Screw -----	2
18	22572 A	Screw -----	9
19	22768	Screw, inlet; for all Styles except XF513E112HR-9 -----	1
*-	22716	Screw, inlet; for Style XF513E112HR-9 -----	2
20	99677 SA	Inlet for all Styles except XF513E112HR-9 -----	1
*-	99677 SC	Inlet, (right) for Style XF513E112HR-9 -----	1
*-	99677 SB	Inlet, (left) for Style XF513E112HR-9 -----	1
21	99679 SF	Plate, cover for all Styles except XF513E112HR-9 -----	1
*-	99679 SE	Plate, cover for Style XF513E112HR-9 -----	1
22	C50082 E	Gasket -----	1
23	660-763	Muffler -----	1
24	671 F-66	Connector, female -----	1
25	RM2997 D	Tubing, plastic; 5 feet (approx. 1.5m) required -----	-
26	671 H-2	Air-Motor Assembly -----	1
27	660-400	Fitting, straight compression, 5/16 inch O.D. -----	2
28	671 H-1E	Screw, plug -----	1
29	671 H-2A	Housing -----	1
30	671 H-2B	Flange, guide -----	1
31	999-166	Gasket, washer -----	1
32	999-140 B	Muffler -----	1
33	22585	Screw -----	2
34	22894 C	Screw, set for 671 H-2 -----	1
35	671 H-1G	Insert, plastic (coupling pin) -----	1
36	660-207	"O" Ring -----	1
37	41071 G	Nut, lock -----	1
38	671 H-2D	Coupling, rod end -----	1
39	671 H-1D	Screw, plug -----	1
40	671 H-1F	Washer, stop -----	1
41	660-753	Spring -----	1
42	671 H-1A	Piston, drive -----	1
43	671 H-1H	Washer, shock absorbing -----	2
44	671 H-2C	Rod, piston -----	1
	671 C-18	Nut & sleeve for 5/16 inch O.D. fittings (shown with fittings) -----	as req.

V29944 A
 *V29944 B

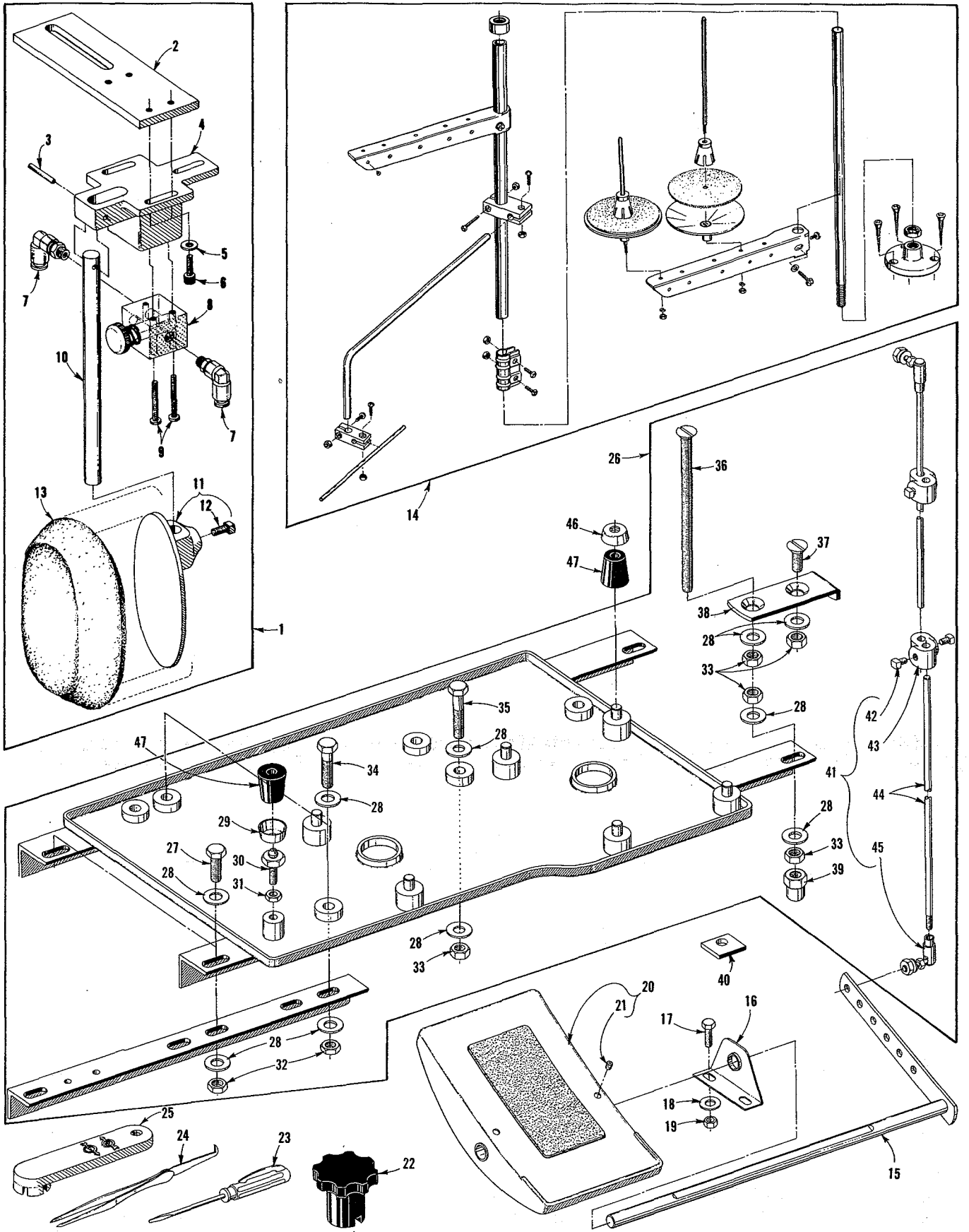
Power "AIR-KLIPP" Assembly includes Ref. Nos. 1 through 16.
 Power "AIR-KLIPP" Assembly includes Ref. Nos. 1 through 16
 including components for XF513E112HR-9.



P175

PNEUMATIC CONTROLS

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>*Amt. Req.</u>	<u>**Amt. Req.</u>
1	29480 ACB	* Pneumatic Control Board Assembly for all "AIR-KLIPP" Styles -----	1	-
-	29480 ACW	** Pneumatic Control Board Assembly for all Styles without "AIR-KLIPP" -----	-	1
2	661-3	Clamp, mounting -----	2	2
3	22650 CF-6	Screw, set -----	2	2
4	652 B-16	Washer, lock -----	2	2
5	22635 D-6	Screw -----	2	2
6	35032 R	Bracket, mounting -----	1	1
7	11635 B	Nut -----	4	2
8	652 B-20	Washer, lock -----	4	2
9	671 D-5	Filter -----	1	1
10	RM3320-1	Reducer -----	1	1
11	RM2850 D	Tee, pipe -----	2	2
12	22571 F	Screw, plug -----	1	1
13	RM3287-2	Nipple, hex -----	1	1
14	671 C-16	Stud, mounting -----	4	2
15	671 D-9	Regulator -----	4	2
16	671 F-69	Fitting, swivel; 90 degree -----	7	5
17	671 D-15	Gauge -----	4	2
18	RM4098-1	Valve, pilot -----	1	1
19	660-403	Muffler -----	1	1
20	RM2881-1	Elbow, 90 degree -----	1	-
21	671 F-94	Tee, run -----	1	-
22	50394 AB	Tube, air; 1/4 inch (6.35mm) -----	1	-
23	671 F-96	Tee, tube -----	1	-
24	660-392	Tube, air; 1/4 inch (6.35mm) -----	3	1
25	671 F-3	Fitting, tube; 3/8 inch (9.52mm) -----	1	-
26	671 B-11	Tube, discharge; for "AIR-KLIPP" Styles -----	1	1
27	671 D-2	Venturi, for "AIR-KLIPP" Styles -----	1	1
28	671 B-3	Tube, venturi; air supply for "AIR-KLIPP" Styles -----	1	1
29	998-332	Holder, venturi; for "AIR-KLIPP" Styles -----	1	1
30	RM2719-1	Screw, wood; for "AIR-KLIPP" Styles -----	2	2
31	671 B-12	Tube, suction; for "AIR-KLIPP" Styles -----	1	1
32	RM2871 B	Tie -----	4	4
33	RM3832-1	Wrap, harness -----	1	1
34	29480 ACD	Treadle Valve Assembly -----	1	1
35	999-146	Link -----	2	2
36	95250	Nut -----	2	2
37	95250	Nut -----	3	3
38	99563 A-75	Rod, pitman -----	1	1
39	C50036 AS	Collar, actuating -----	2	2
40	22894 R	Screw -----	2	2
41	671-135	Bracket, mounting -----	1	1
42	22571 F	Screw, plug; used without optional accessories -----	1	1
43	671 F-69	Fitting, swivel; 90 degree -----	2	2
44	SC191	Screw -----	3	3
45	671-134	Body, valve -----	1	1
46	99563 A-130	Rod, pitman -----	2	2
47	G28562 A	Connector, rod (Pitman) -----	1	1
48	95051	Screw -----	1	1



THREAD STAND AND ACCESSORIES

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Amt. Req.</u>
1	29480 ADL	Knee Press Assembly -----	1
*2	50364 H	Bracket, mounting -----	1
3	667 C-16	Pin, dowel -----	1
4	AS-7-2	Base, knee press -----	1
5	RM3263-5	Washer -----	2
6	22653 B-12	Screw -----	2
7	671 F-69	Fitting, swivel; 90 degree -----	2
8	671-85	Valve, three way -----	1
9	RM2805-1	Screw -----	2
10	AS-7-1	Rod, knee press -----	1
11	AS-7-3	Press, knee -----	1
12	69 FD	Screw -----	1
13	660-168	Pad, knee press -----	1
14	21101 W-2	Thread Stand Assembly for single needle machines ---	1
-	21101 W-4	Thread Stand Assembly for two needle machines -----	1
-	21101 W-6	Thread Stand Assembly for three needle machines ----	1
15	21374 R	Shaft, presser foot treadle -----	1
16	21374 N	Bracket, treadle shaft mounting -----	3
17	RM3162-2	Screw -----	6
18	652-16	Washer -----	6
19	RM2791-3	Nut -----	6
20	21374 P	Treadle, presser foot -----	1
21	22651 CD-4	Screw -----	2
22	21205 B	Wrench, stitch length adjusting -----	1
23	21207 B	Screwdriver -----	1
24	660-240	Tweezer, thread -----	1
25	21205 C	Wrench, stitch length adjusting for puller machines	1
26	21374 C	Cradle Assembly, machine -----	1
27	22604	Screw -----	2
28	RM3293-3	Washer -----	30
29	C50095 C	Retainer, isolator -----	1
30	C50095	Screw, mounting -----	1
31	651 B-16	Nut -----	1
32	651 B-24	Nut -----	4
33	11698 L	Nut -----	19
34	22604	Screw -----	2
35	22640 M-96	Screw -----	3
36	22638 C	Screw, flat head -----	4
37	SC170	Screw, flat head -----	4
38	21374 D	Bracket, frame mounting -----	4
39	21371 LR	Nut, cap -----	4
40	21374 U	Spacer, table board -----	4
41	28561 M	Rod Assembly, pitman -----	1
42	22508	Screw -----	4
43	28562 A	Connection, pitman -----	2
44	1453 R	Rod, pitman -----	2
45	21374 T	Joint, connecting -----	2
46	C50095 C	Retainer, isolator -----	6
47	51295 A	Isolator -----	7
	28604 S	Container of oil, 32 ounces (946ml.) spec 175, (not shown) -----	1

*Mounting Bracket for Knee Press Assembly is applicable for use with right or left knee.

GENERAL PREVENTIVE MAINTENANCE SCHEDULE

XF500 TASK	DAILY	AFTER FIRST MONTH	EVERY MONTH	EVERY -3- MONTHS	EVERY -6- MONTHS	YEARLY
Check oil level (sight gauge) oil level between red lines.	XF500					
Check pump operation (oil flow indicator-top of arm).	XF500					
Clean lint & dirt from machine.	XF500					
Check that all guards and shields are in place and being used.	XF500					
Change oil-filter.		XF500		XF500		
Change oil (oil which conforms to U.S.C. spec. 175 must be used).		XF500			XF500	
Check tension on internal timing belts.		XF500				XF500
Inspect clutch/positioner motor V-belt tension and wear.					XF500	
Check clutch motor clutch/brake.				XF500		
Clean lint from oil cooler.		XF500	XF500			
Clean lint from clutch/positioner motor air passages.		XF500	XF500			
Check needle/s bent, blunt, sharp or worn eye or groove.	XF500					

NOTE: SCHEDULING IS BASED ON NORMAL WORKING CONDITIONS. FREQUENCY OF TASKS DEPENDS ON MACHINE DUTY CYCLE TIME AND PERSONNEL RESPONSIBLE TO PERFORM TASK DETERMINED BY PLANT MANAGEMENT.

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