Form K6432
(1161)

SERVICE MANUAL

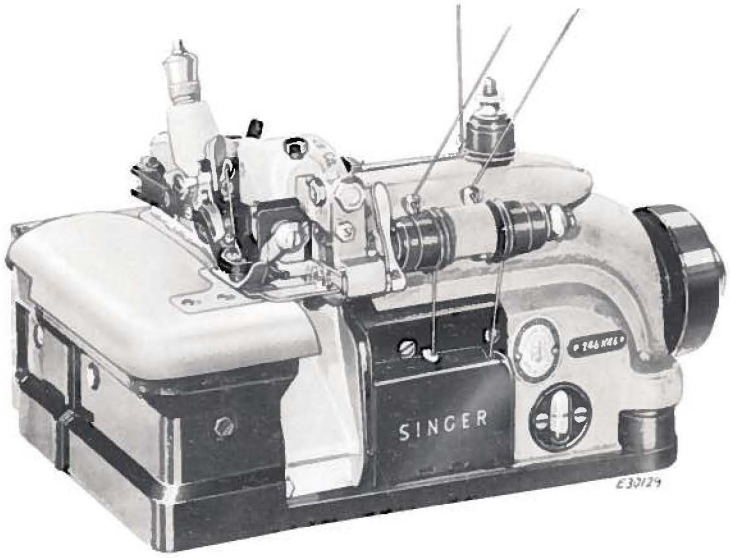
AND PARTS LIST

FOR

SINGER*

INTERMITTENT GATHERING MACHINE

246k46



CAUTION—See that machine reservoir is filled with oil, as instructed on page 5 before using machine.

THE SINGER MANUFACTURING COMPANY

*A Trademark of THE SINGER MANUFACTURING COMPANY

Printed in Great Britain

CONTENTS

INDEX

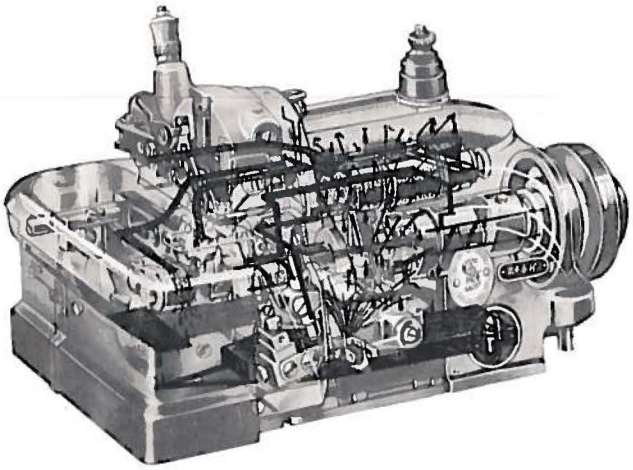


Fig. 2. X-ray View of Class 246K Machine (Lubricating System Shown in Solid Black)

Machine 246K46 produces high speed **continuous or intermittent gathering** and simultaneous trimming on rayon, tricot, silk, muslin, light denim, flannel, balbriggan knit goods, light and medium weight sweater materials.

Regularly fitted with **one needle** and **two loopers,** this machine makes the **three-thread overedge tight needle thread** stitch **(Stitch Type #504,** shown in **Fig. 3).** See **pages 9** and **10** for instructions on threading.

Machine can be fitted and threaded to produce the two-thread overedge stitch **(Stitch Type #503,** shown in **Fig. 4).** See **page 11** for instructions on threading.

Machine employs these curved needles:

Catalogue #1265 (151 x 7) regular.
Catalogue #1263 (151 x 3) tapered blade.

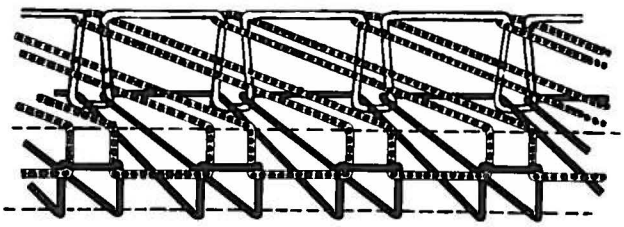


Fig. 3. Stitch Formation (Stitch Type #504)

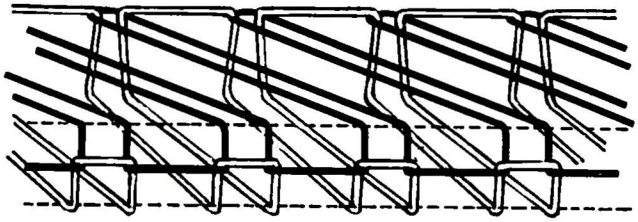


Fig. 4. Stitch Formation (Stitch Type #503)

Loopers (or looper and spreader) **independently driven,** permitting variations in their adjustment in relation to each other and to the needle, to suit the work required.

Either left or right twist of thread may be used in needle and in loopers.

Controlled gathering feed device built into machine, enables operator to gather or to feed material evenly at will (see **page 14**). Knee controller regularly supplied. Foot controller, supplied upon request, at an additional charge.

Stitch shortening device, available at additional cost upon specific order, enables operator to **shorten the stitches at any point** in the sewing operation (see **page 14**).

Two bronze feed eccentrics 164915 regularly supplied; one **6** stitches to the inch for **front** feed and one **14** stitches to the inch for **rear** feed.

Adjustable trimmer cuts cleanly; operating in advance of needles. Trimmings guided into chip chute to avoid interference with work and with mechanism. **Trimmer** is adjustable to cut **1/16** inch to **1/4** inch from needle.

Presser foot can be swung toward left to facilitate threading or replacement of needle.

Bight limit, 1/16 inch to **7/32** inch.

Tubular operation is accommodated by a small "horn" extension of the throat plate support.

Cloth plate can be swung to the left for convenience, when stitching tubular pieces or when making machine adjustments.

Splash lubricating system shown in **Fig 2,** automatically and continuously oils principal bearings during operation.

Oil cooling reservoir in rear of machine.

Oil level indicator gauge in direct view of operator.

Oils recommended, see inside front cover.

Machine pulley 164231 for **3/8** inch V-belt; also used for **5/16** inch round belt.

Machine pulley should always turn over away from operator when machine is in motion.

Maximum speed, 5500 stitches to the minute.

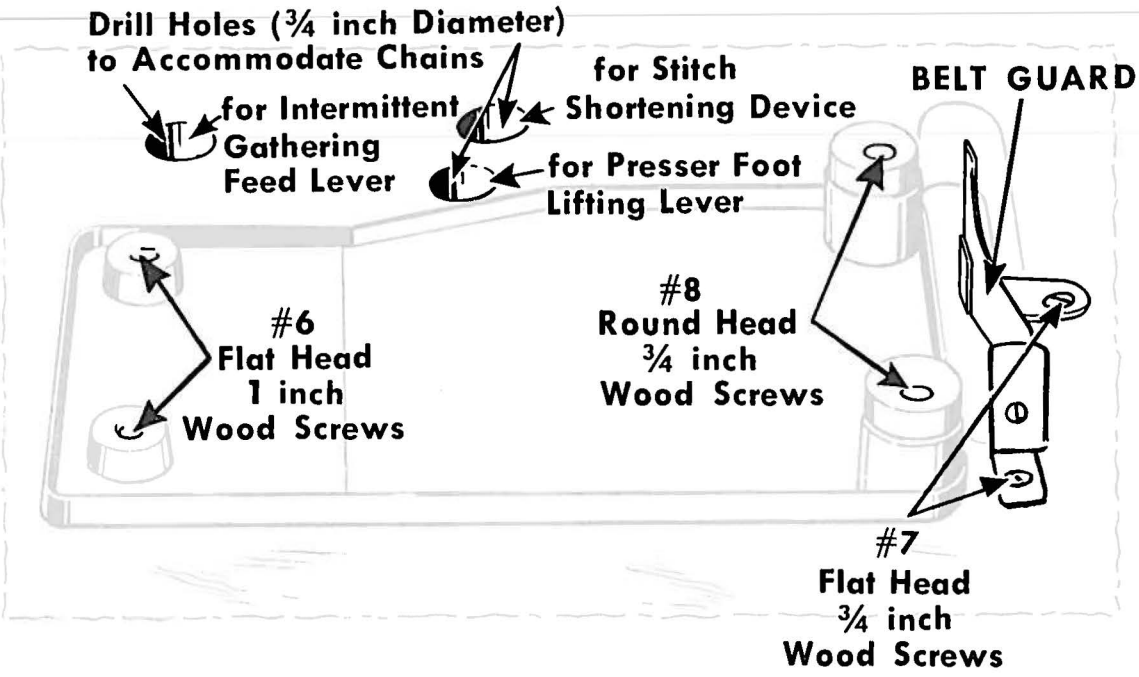


Fig. 5. Machine Base on Table, Showing Position and Drill Sizes of Holes Required for Installation

INSTALLATION OF MACHINE AND BASE ON TABLE

Place machine and base on table top with belt groove of machine pulley in line with belt groove of driving pulley.

Spot position of hole behind machine base, directly below chain slot on presser foot lifting lever.

Spot position of hole either in line with chain for intermittent gathering feed lever or in line with chain for stitch shortening device, to suit device in use, as instructed in **Fig. 5.**

Remove machine from base. Draw outline of machine base in position on top of table.

Drill all holes spotted earlier, **3/4** inch in diameter, to accommodate chains.

Using base and belt guard as template, spot and drill six holes in table for wood screws, as shown in **Fig. 5**

Fasten machine base and belt guard to table with the six wood screws, described in **Fig. 5.**

Set machine on rubber cushions at four corners of base.

FOOT LIFTER:

As the stand recommended for Class **246K** Machines with foot lifter includes a suitable foot lifter treadle, foot lifter chain **6439,** without the treadle, will be sent with the machine. If, however, the machine is fitted to a stand or other equipment which does not have a suitable treadle, orders should state that foot lifter treadle **4885** is required and it will also be supplied, without extra charge.

ACCESSORIES AND TOOLS

Foot lifter. Knee lifter supplied instead, when specified on order.

Threading wire 164196.

Tweezers 164204.

Socket wrench 164197 (for needle clamping nut).

Flat, open-end wrench 8908 (for feed eccentric nut).

Screwdriver 85318.

Wrench 164831 (for right looper carrier guide bar oil plug screw nut).

Thread unwinder 151031 for two or three-thread.

Thread unwinder 228705 (two-thread) or **228706** (three-thread) for nylon threads will be supplied instead of regular unwinder, upon specific order.

CAUTION

All of the oil is drained from the machine before it is shipped from the factory.

DO NOT START THE MACHINE UNTIL IT HAS BEEN THOROUGHLY LUBRICATED AS INSTRUCTED ON PAGE 5.

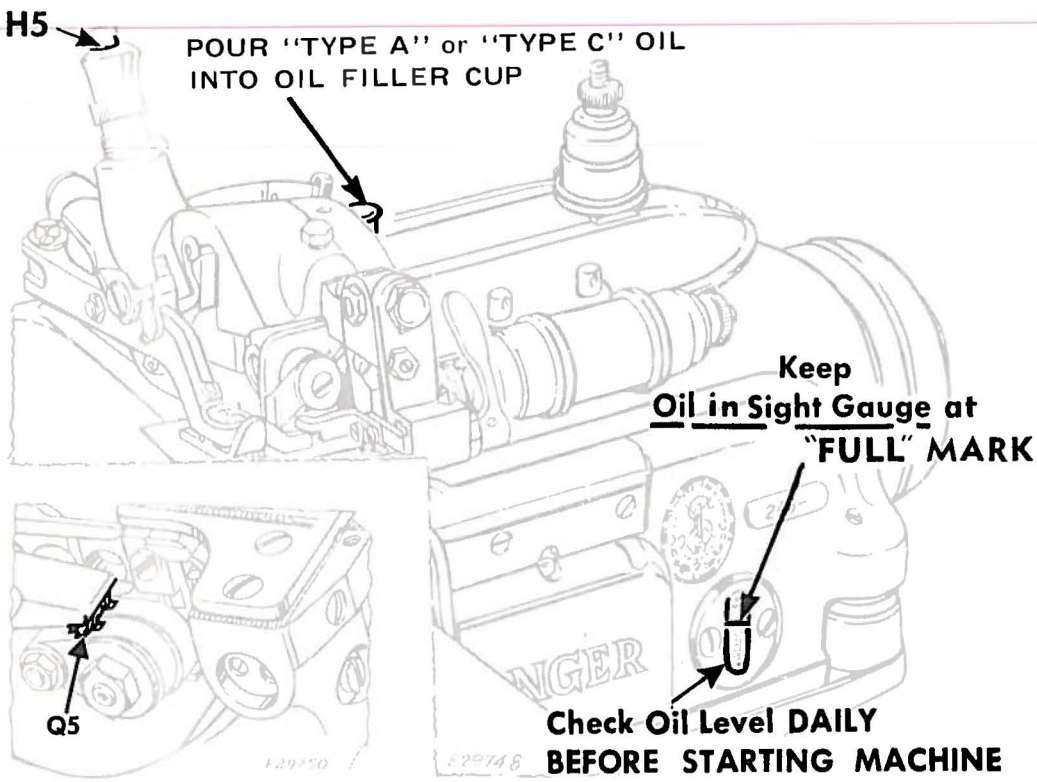


Fig. 6. Filling Oil Reservoir

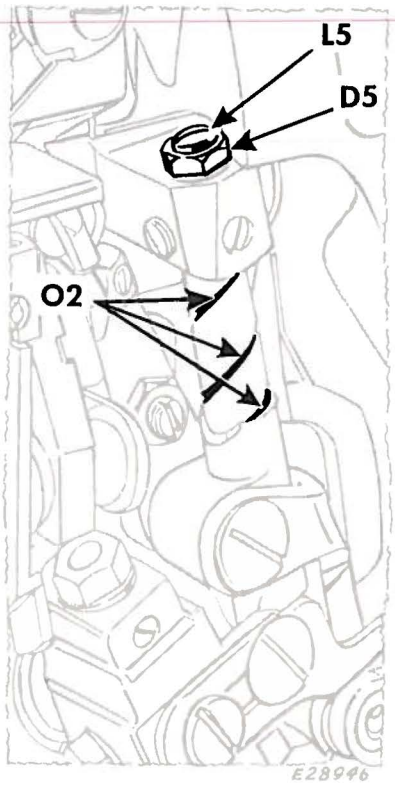


Fig. 7. Oil Flow Adjustment

Use "TYPE A" or "TYPE C" OIL, sold by Singer Sewing Machine Company.

Apply this oil to oil filler cup on top of machine, pouring oil into reservoir until oil in sight gauge is at **"FULL" mark,** as indicated in **Fig. 6.**

Check oil sight gauge daily before starting machine and oil machine, when necessary, as instructed in **Fig. 6** above.

WHEN A MACHINE HAS BEEN IDLE FOR A CONSIDERABLE TIME (OR AFTER A MAJOR INSTALLATION OF PARTS): Clean the machine **thoroughly.** Then apply **a few drops of oil** to oil grooves of feed bar connections (see inset at bottom left of **Fig. 6)** and to looper carrier connection guide bar at **O2, Fig. 7,** behind upper knife carrier and chip guard. Apply a drop of oil to presser bar at **H5, Fig. 6. Check oil level in reservoir,** as instructed in **Fig. 6.**

AFTER MACHINE IS INSTALLED AND BEFORE STARTING MACHINE:

Remove the chip guard from the front of the machine.

Check the oil flow on right hand looper carrier connection guide bar, at **O2, Fig. 7.**

To adjust amount of oil flow on guide bar at **O2,** loosen lock nut **D5, Fig. 7** and turn adjusting screw **L5, Fig. 7** clockwise as far as possible. **Oil flow is now shut off, completely.** Back off screw **L5** (turning screw anti-clockwise) 1/2 turn. Check lubrication again.

To increase oil flow, turn screw **L5** anti-clockwise a small amount and recheck lubrication.

If oil flow is too great, turn screw **L5** clockwise about 1/4 turn and recheck.

Never operate machine when oil flow is SHUT OFF at L5.

When correct oil flow is obtained tighten the lock nut **D5, Fig. 7.** Replace the chip guard.

Remove belt and check freeness of machine by turning machine pulley by hand. Replace belt.

Finally, **"run-in" the machine** for approximately 15 minutes at a moderate speed.

SPEED

Maximum speed recommended for this machine is **5500 stitches to the minute. 5000 stitches to the minute** is recommended for **long runs** or while sewing **long stitches.**

Maximum **efficient** speed is dependent upon the ability of the operator, the nature of the operation and the type of material being sewn.

It is advisable to operate the machine at a more moderate speed the first few days, after which it can be run at top speed.

When the machine is in operation, top of **machine pulley must always turn over away from operator.**

NEEDLES AND THREAD

Needles are of curved blade, Catalogue # 1265 (151 × 7) regular, in sizes 9 to 12, 14, 16, 18, 19 and 21. Needles of Catalogue # 1263 (151 × 3) with tapered blade, in sizes 5, 6, 7, 9 and 11 are available.

Selection of needles can make a great difference in the ease and quality of the work. It is important that each needle be just right for machine, thread and work being done.

Choose your needle carefully. The correct size will permit thread to pass freely through needle eye; avoiding strain and breakage of thread.

Either right twist or left twist thread may be used.

If trouble occurs during sewing:

Inspect needle point. A hook or burr may cause poor stitching or some materials may be cut when short stitches are used.

Check curvature of each needle, as instructed below. Unless needle has the correct curvature, it may cause skipping of stitches.

Orders for needles must specify the quantity required, the Size number and the Catalogue number. . . . .

For example . . .

"100 Size 9, Catalogue # 1265 (151 × 7) Needles."

The best stitching results will be obtained when using needles sold by Singer Sewing Machine Company.

CURVATURE OF NEEDLE BLADE

(Gauge 164588, for needles of Sizes 7 to 16, only)

Before making any stitching adjustments, the curvature of each needle blade should be checked in the following manner:

Using Gauge **164588,** shown in **Fig. 8,** insert shank of needle, with its **flat side up,** in the groove **A.** Push the needle along the groove as far as it will go against stop **B.** Tighten clamping screw **C.**

Swing the indicator **D,** slowly to and fro, along the curve of the needle blade, observing the distance between the needle blade and the tip of the indicator.

The tip of the indicator should just make contact at the needle eye and should clear needle blade, at upper end of curve, by approximately **.005** to **.006** inch. Use feeler gauge.

Reject any needle that cannot pass this test.

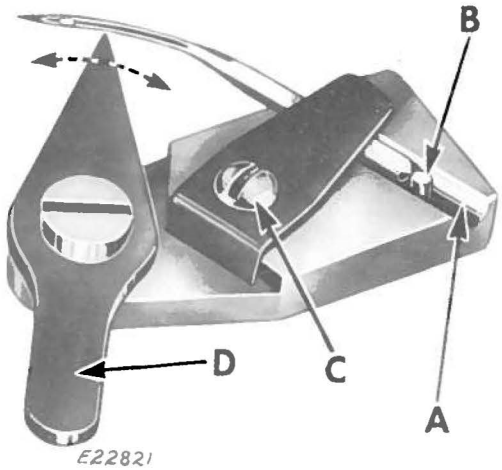


Fig. 8. Checking Needle Curvature

SETTING THE NEEDLE

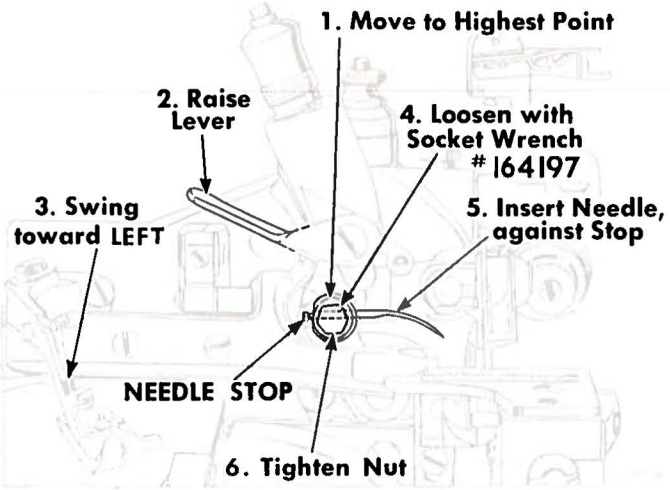


Fig. 9. Needle Correctly Set in Needle Clamp

Move needle clamp up to its **highest** position.

Insert needle, as instructed in **Steps 1** to **5** in **Fig. 9.**

When needle is correctly inserted in needle clamp, securely tighten needle clamping nut. (See **Step 6, Fig. 9.**)

PREPARATION FOR THREADING

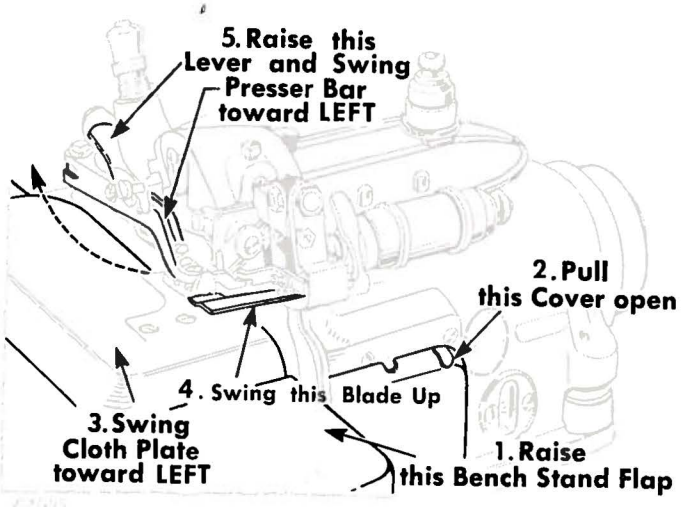


Fig. 10. Preparation for Threading

For convenience in threading . . .

. . . Raise bench stand flap.

. . . Open front cover plate, as instructed in **Step 2, Fig. 10.**

. . . Swing cloth plate and gathering attachment blade out of position.

. . . Release presser bar as instructed in **Step 5, Fig. 10** and swing presser bar toward left.

TO THREAD UNWINDER

Select the unwinder suitable for the type of stitch and work to be accomplished.

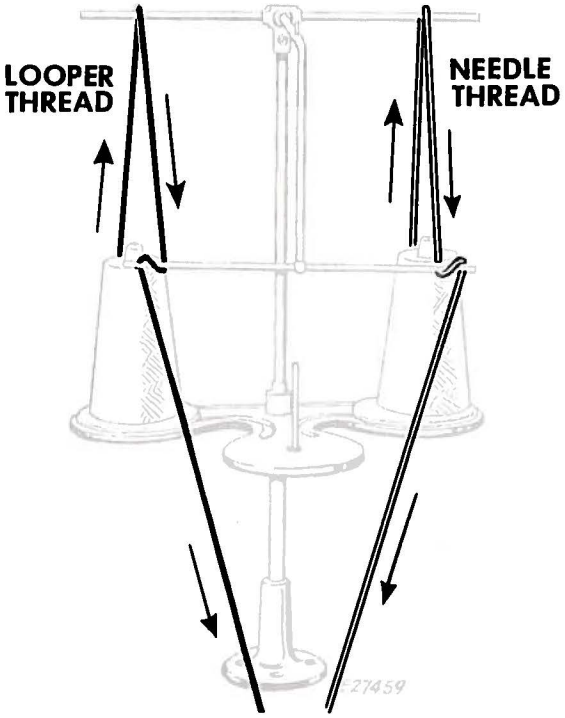


Fig. 11. Unwinder 151031 Threaded for Two-Thread Stitch

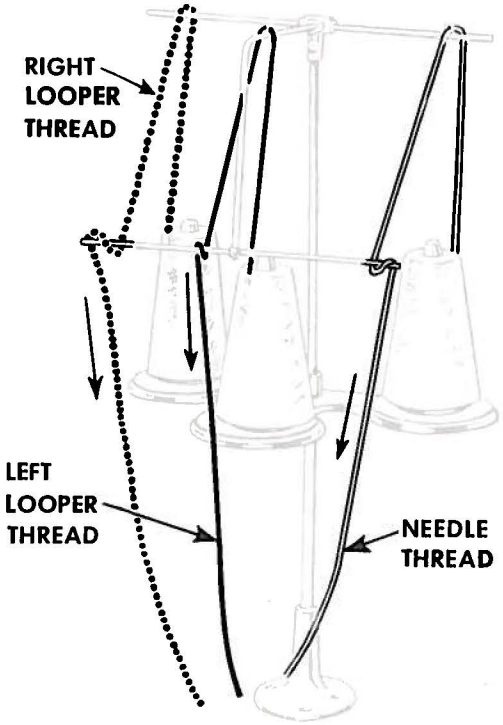


Fig. 12. Unwinder 151031 Threaded for Three-Thread Stitch

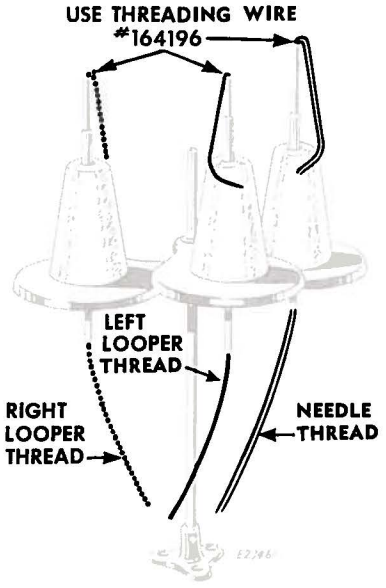


Fig. 13. Unwinder 228706 (for Nylon Thread) Threaded for Three-Thread Stitch

TO THREAD THE MACHINE
FOR THREE-THREAD TIGHT NEEDLE THREAD STITCH (TYPE #504)
(Regular for this Machine)

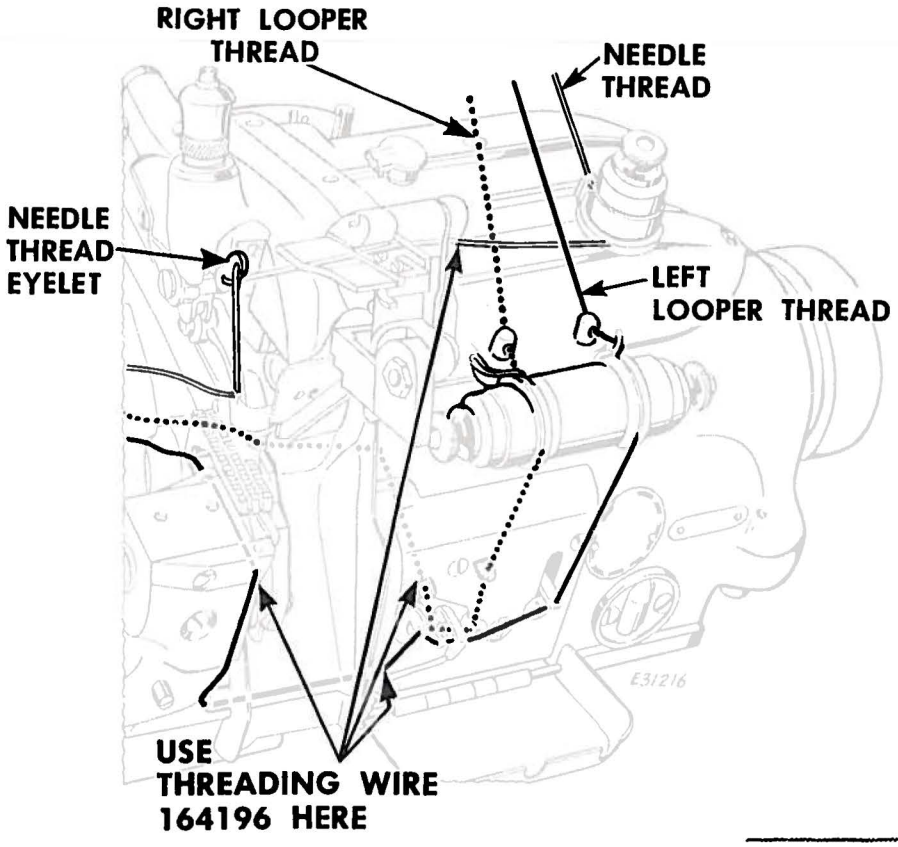


Fig. 14. Threading the Machine (Three-thread Tight Stitch)

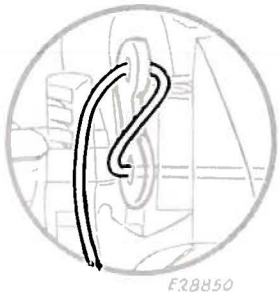


Fig. 15. Threading Needle-thread Eyelet (Tight Stitch)

Fig. 16. Threading Wire 164196

Machine should be equipped with needle thread controller **164151, Fig. 38, page 20,** looper thread take-up **164175** and looper thread stripper-and-take-up **164091,** shown in **Fig. 18, page 10.**

Pass each thread through threading points as shown in **Figs. 14, 15** and **18.**

IMPORTANT:

Thread the **needle thread (double line)** completely **first.**

Thread **right** looper thread **(dotted line)** completely **next.**

Thread the **left** looper thread **(solid line) last.**

Use threading wire **164196,** shown in **Fig. 16,** to pass threads through threading tubes, at points indicated in **Fig. 14.** Draw four or more inches of thread through eyelet in threading wire and pass threaded wire through required threading tube.

NEEDLE THREAD: Before passing needle thread (see **double line**) through its threading tube, turn machine pulley over toward you until needle is at its **lowest position.**

Observe the correct position and method of threading needle thread eyelet as shown in **Fig. 15.**

After threading needle thread eyelet, raise needle to its highest position and pass the thread from front to rear through needle eye.

When threading needle, double back the end of the thread and twist it; making thread stiff enough to thread the needle eye easily.

LOOPER THREADS: Before threading left looper, turn machine pulley over from you until the **eye of left looper is directly in line** with the threading tube underneath throat plate.

Pass each looper thread through its threading points, as shown in **Figs. 14** and **18.**

FOR THREE-THREAD TIGHT NEEDLE THREAD STITCH (CONTINUED)

When threading right looper, be sure that there is no loose loop of thread on end of looper (see Fig. 17) to cause thread breakage.

Draw about two inches of thread through needle eye and through each looper eye, with which to start sewing.

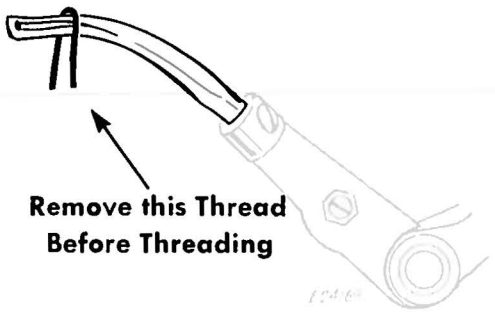


Fig. 17. Right Looper

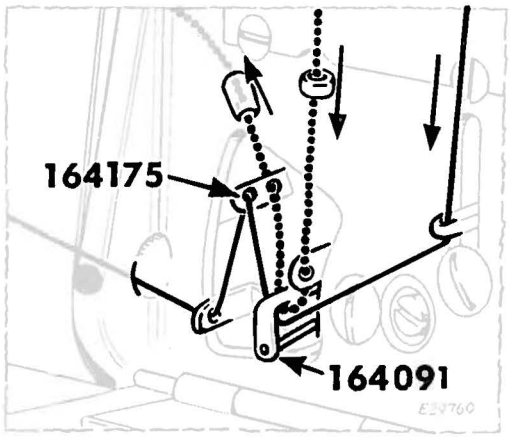


Fig. 18. Threading Looper Take-up (Three-thread Tight Stitch)

FOR THREE-THREAD PURL-ON-THE-EDGE STITCH (TYPE #505)

The machine should be equipped with **left and right loopers,** with needle thread controller **164381, Fig. 39, page 20,** and with take-up parts **164857** and **164288,** shown in **Fig. 20.**

The machine is threaded for three-thread purl-on-the-edge stitch in the same manner as for three-thread tight stitch (see **Fig. 14** and instructions on **page 9)** with the following exceptions:

The needle thread eyelet must be threaded as shown in **Fig. 19.**

The looper thread take-up must be threaded as shown in **Fig. 20.**

Needle thread eyelet, shown in **Fig. 19,** may be raised or lowered, as required. To change the position of the eyelet, loosen screw **R5, Fig. 19,** move eyelet to desired position and securely re-tighten screw **R5.**

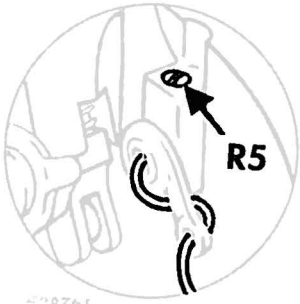


Fig. 19. Threading Needle Thread Eyelet (Purl Stitch)

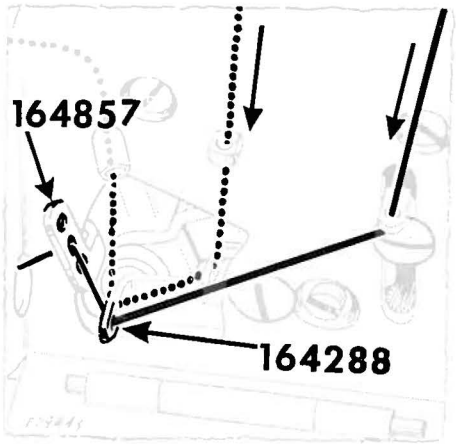


Fig. 20. Threading Looper Take-up (Purl-on-the-Edge Stitch)

TO THREAD THE MACHINE
FOR TWO-THREAD STITCH (TYPES #502 and #503)

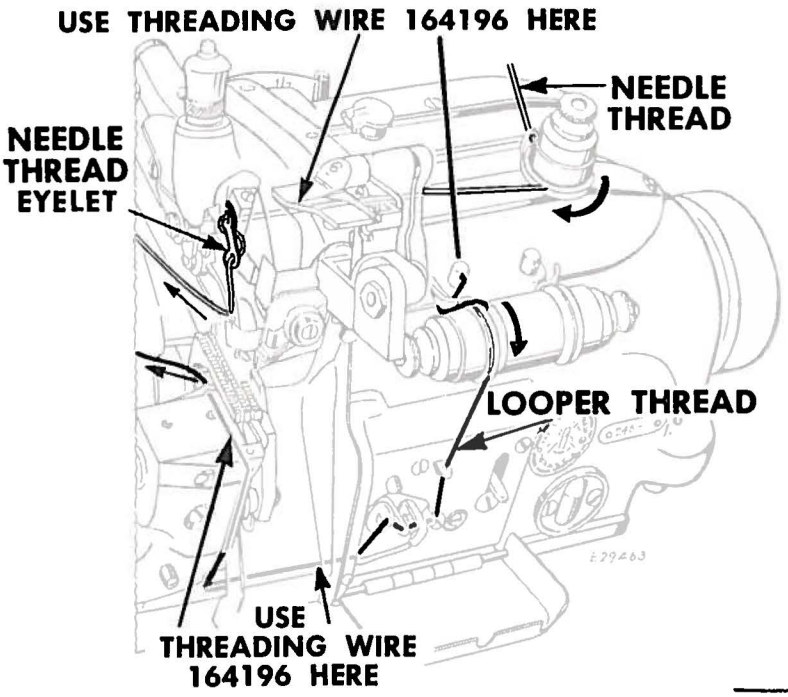


Fig. 21. Threading the Machine (Two-Thread Stitch)

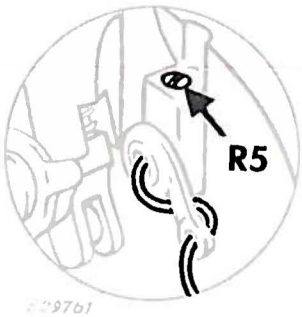


Fig. 22. Threading Needle Thread Eyelet

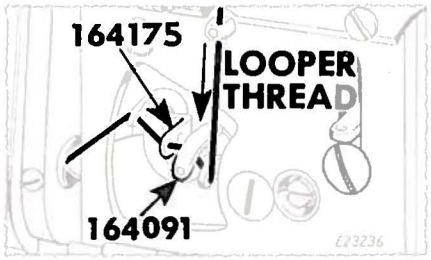


Fig. 23. Threading Looper Take-up

Fig. 24. Threading Wire 164196

Machine should be equipped with needle thread controller **164381, Fig. 39, page 20,** and with looper thread take-up **164175** and looper thread-stripper-and-take-up **164091,** shown in **Fig. 23.**

Needle thread eyelet, shown in **Fig. 22,** may be raised or lowered, as required. To change the position of the eyelet, loosen screw **R5, Fig. 22.** Move eyelet to desired position and securely retighten screw **R5.**

To thread the machine, pass each thread through threading points in the order shown in **Figs. 21, 23. Double** line indicates **needle** thread. **Solid** line indicates **looper** thread.

BOTH THREADS: Use threading wire **164196,** shown in **Fig. 24,** to pass threads through threading tubes, at points indicated in **Fig. 21.** Draw four or more inches of thread through eyelet in threading wire and pass threaded wire through required threading tube.

NEEDLE THREAD: Before passing needle thread through its threading tube, turn machine pulley over away from you until needle is at its **lowest position.**

Note method of threading needle thread eyelet as shown in **Fig. 22.**

After threading needle thread eyelet, raise needle to its highest position and pass thread from front to rear through needle eye.

LOOPER THREAD:

Before threading looper, turn machine pulley over from you until **eye of looper is directly in line with threading tube** underneath throat plate.

Pass looper thread through threading points, as shown in **Figs. 22** and **23.**

Draw about two inches of thread through needle eye and through looper eye, with which to start sewing.

REGULATION

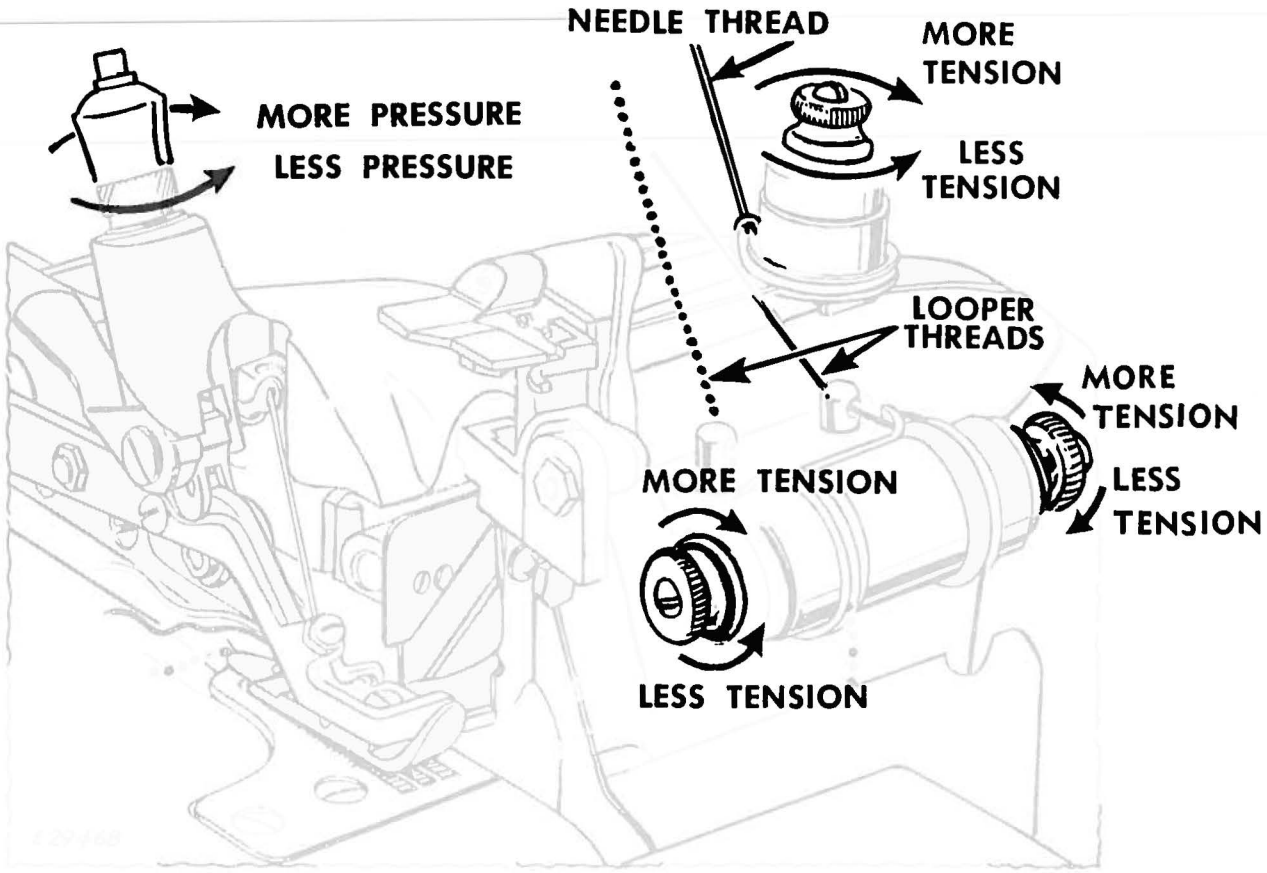


Fig. 25. Regulating Tension of Threads and Pressure of Presser Foot on Material

THREAD TENSIONS

Tension on needle thread should be just sufficient to set stitch correctly. (See **Figs. 3** and **4** on **page 3** for correct stitch formation.)

For average sewing, **tension on looper thread** should be **very light.**

Regulate thread tensions as instructed in **Fig. 25.**

PRESSURE OF PRESSER FOOT ON MATERIAL

Correct pressure of presser foot helps feed the work properly.

Always use **lightest pressure possible.**

Regulate the pressure of the presser foot on the material as instructed in **Fig. 25.**

SUGGESTIONS FOR EFFICIENT OPERATION

Always turn machine pulley over away from you.

Never allow oil level in oil reservoir to drop below the **"FULL"** mark on the oil sight gauge.

Clean out any lint around the loopers and between the feed rows of the feed dog.

Frequently inspect area beneath presser bar housing and behind upper knife lever cover and remove accumulation of lint.

Always use lightest tensions and lightest pressure possible on material.

Don't forget to remove loop of thread from right looper **before threading.**

NOTE: The instructions on the following pages are for Service Representatives.

To insure proper timing and avoid unnecessary repetition, these instructions should be followed in the order given.

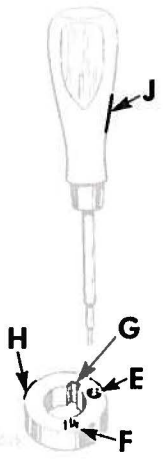


Fig. 26. Feed Eccentric Extractor 164203 and Eccentric 164915, bronze

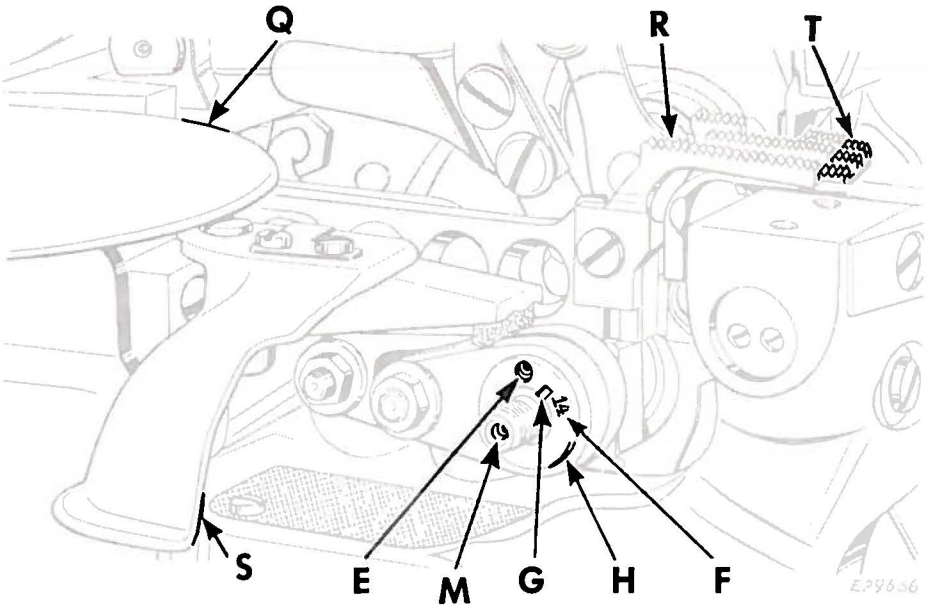


Fig. 27. Changing Length of Stitch

The length of stitch is determined by the feed eccentrics in use.

Each feed eccentric is marked with the number of stitches it makes, as shown at **F, Figs. 26** and **27.**

Feed Eccentric **164915, bronze,** can be supplied to make 4 to 16, 18, 20, 22, 24, 28, 32, 36, 40, 45, 50, 60, 70, 80 and 100 stitches to the inch.

Unless otherwise ordered, only two feed eccentrics, **#6** for the front feed and **#14** for the rear feed, will be supplied.

REMOVING FEED ECCENTRICS:

Swing cloth plate **Q,** presser bar and feed eccentric cover **S, Fig. 27** out to the left.

Using Wrench **10875,** remove the hexagon head nut and washer from the shaft **M, Fig. 27.**

Screw feed eccentric extractor **J, Fig. 26** into threaded hole **E** of outer eccentric. Pull gently with extractor **J** to remove outer eccentric. Inner eccentric can then be removed, in the same manner.

INSTALLING FEED ECCENTRICS:

When replacing each feed eccentric, be sure that the stamped number is on the **outside** face of eccentric, as shown at **F,** in **Fig. 27.**

The **inner** feed eccentric (which is placed on the shaft **first**) controls the movement of the **front** feed dog **T.** The **outer** feed eccentric (which is placed on the shaft **last**) controls the movement of the rear feed dog **R.**

The keyway on the eccentric should fit over key at **G** on shaft **M, Fig. 27.** Line up front and rear feed bars and install eccentrics. When both feed eccentrics are in position, replace the washer and hexagon head nut and screw the hexagon head nut securely on the shaft **M.**

INTERMITTENT GATHERING FEED

The intermittent gathering feed control mounted behind the cloth plate, as shown in **Fig. 28,** enables the operator to gather the material at will.

The limits of gathering are determined from the "full gathering" at the mark **"F"** on the indicator plate **CC, Fig. 28,** to "feeding the material evenly" (straight stitching) at the mark **"O",** by setting the stop limits **DD** and **EE** where desired on plate **CC, Fig. 28.**

The degree of gathering at any point in the line of stitching is controlled by the knee controller or treadle which is connected to the chain **BB, Fig. 28.**

When machine is installed fully submerged in a table the range of gathering may be determined by inserting extension stop screw **RR, Fig. 28,** in one of the three holes **GG** in the presser foot lifter **HH, Fig. 28.** The fractions 1/4, 1/2 and 3/4, stamped upon the presser foot lifter **HH,** correspond to similar markings on the indicator plate **CC.**

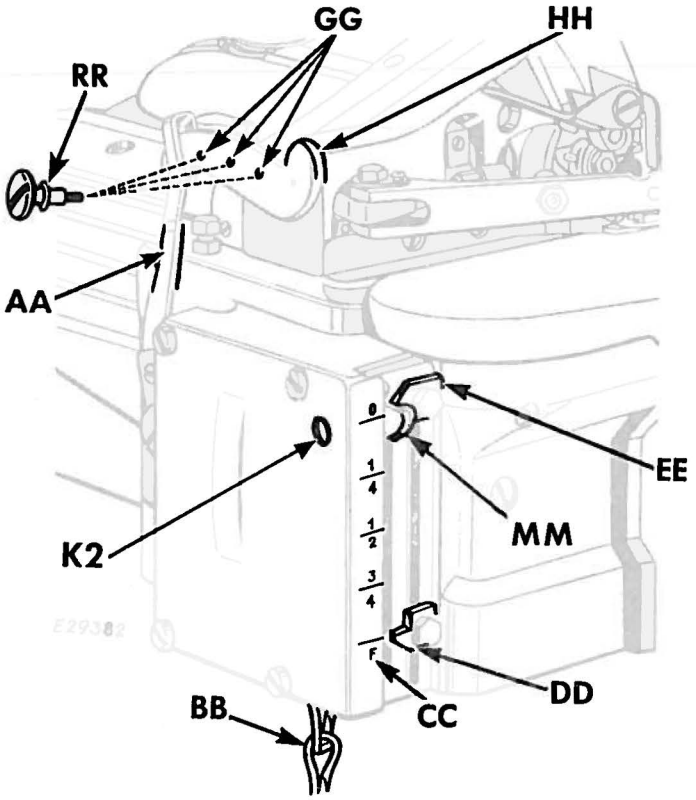


Fig. 28. Intermittent Gathering Feed Mechanism

STITCH SHORTENING DEVICE

The automatic control for shortening the stitch length, at any point desired, is illustrated in **Fig. 29.**

This device may be obtained on specific request, at additional cost.

When it is desired to shorten the stitches at any point in line of stitching, press the knee controller or treadle, which is connected to lever **MM** through chain **SS, Fig. 29.**

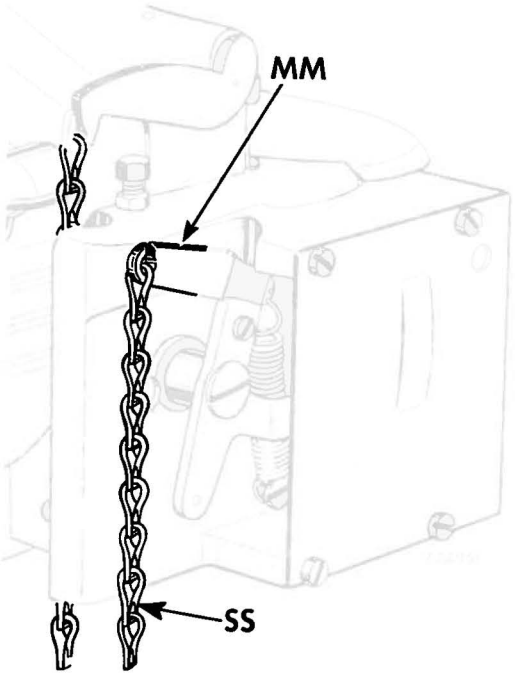


Fig. 29. Automatic Stitch Shortening Device

TO SET THE FEED DOGS AT THE CORRECT HEIGHT

Using Gauge 164592
(See Fig. 30)

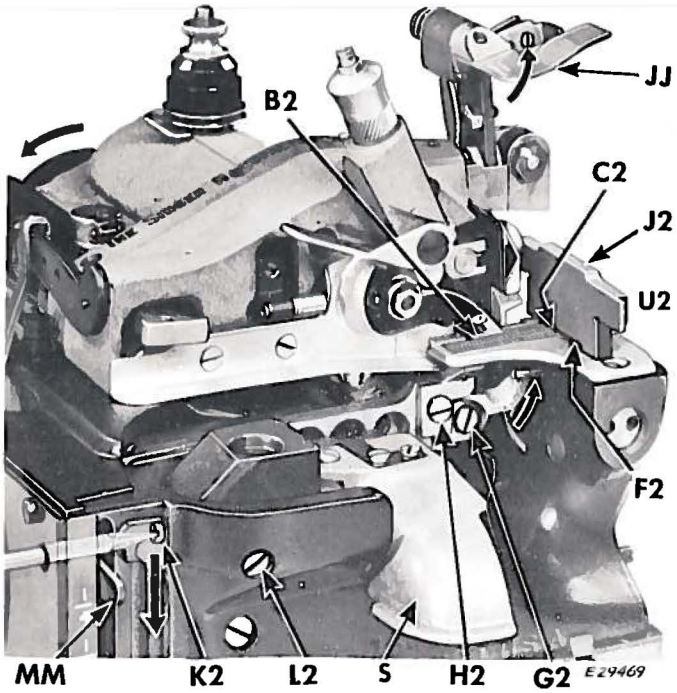


Fig. 30. Setting the Feed Dog
(Cloth plate and presser foot have been removed for purpose of illustration, only.)

CHECKING HEIGHT OF FEED DOGS:

Swing the presser foot out to the left, flip attachment **JJ** upward, as shown in **Fig. 30** and turn the machine pulley over from you until the feed dogs are at their highest position.

Place the gauge **J2, Fig. 30,** over the front feed dog **C2,** as shown in **Fig. 30.** Gauge **J2** must rest firmly upon the throat plate **U2.** At this setting, front feed dog should just touch the bottom face **F2** of the gauge.

Set rear feed dog at same height as front feed dog.

ADJUSTMENT:

Swing the cloth plate and the feed eccentric cover **S** out to the left.

Loosen the adjusting screw **G2** and raise or lower the front feed dog **C2,** as required. Then tighten screw **G2.**

Loosen the adjusting screw **H2** and raise or lower the rear feed dog **B2,** as required. Then tighten screw **H2.**

TO TILT THE FEED

(See Fig. 30)

When it is desired to tilt the feed, first set the feed dogs **B2** and **C2** at the correct height as described above. Then lower the lever **MM,** to permit screwdriver to reach screw at **K2,** as shown in **Fig. 30.** Loosen the hinge pin set screw at **K2 just 1/2 turn.**

To tilt the feed **up in the rear** and **down in the front** of the needle, slowly turn the hinge pin **L2, Fig. 30 over toward the rear** of the machine, until the desired amount of tilt is obtained.

To tilt the feed **down in the rear** and **up in the front** of the needle, slowly turn the hinge pin **L2 over toward the front** of the machine, until the desired amount of tilt is obtained. Then tighten the set screw at **K2.**

TO SET THE NEEDLE CLAMP AT THE CORRECT HEIGHT

Using Gauge 164592
(See Figs. 31 and 32)

CHECKING HEIGHT OF NEEDLE CLAMP:

Turn the machine pulley over from you until the needle clamp **R2** reaches its highest position.

Flip attachment **JJ, Fig. 30,** upward.

Swing the presser foot and cloth plate out to the left.

Remove the needle and the throat plate.

Turn the machine pulley over from you until the needle clamp **R2** reaches its lowest position.

Slip the "LOW" end of the gauge **J2** between the needle clamp and the throat plate seat **V2,** as shown in **Fig. 31.**

At this setting, the needle clamp **R2** should just touch the top surface **Q2** on the "LOW" end of the gauge **J2, Fig. 31.**

ALTERNATE CHECK: In the absence of a gauge, the distance between bottom of needle clamp **R2** and **top surface** of throat plate seat should be set at **.406** inch.

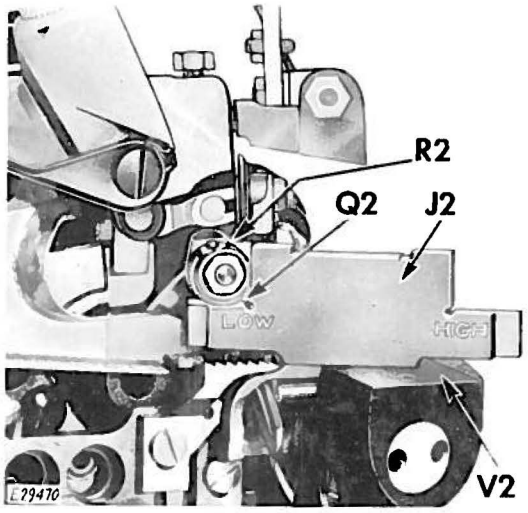


Fig. 31 Checking the Height of the Needle Clamp

ADJUSTMENT:

Remove the top frame cover and loosen the clamping screw **T2** and the two screws **P2** and **Y, Fig. 32.**

Raise or lower the needle clamp **R2,** as required.

To secure the needle clamp in the correct position, first securely tighten the screw **T2,** then tighten the two screws **P2** and **Y.**

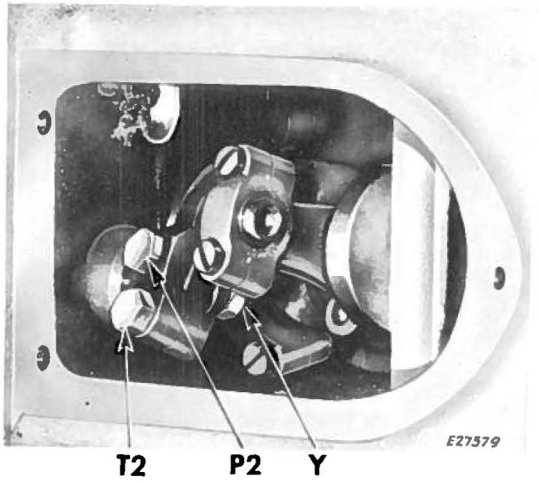


Fig. 32. Adjusting the Height of the Needle Clamp

TO SET THE LEFT LOOPER IN RELATION TO THE NEEDLE

Using Gauge 164592

(See Figs. 33 and 34)

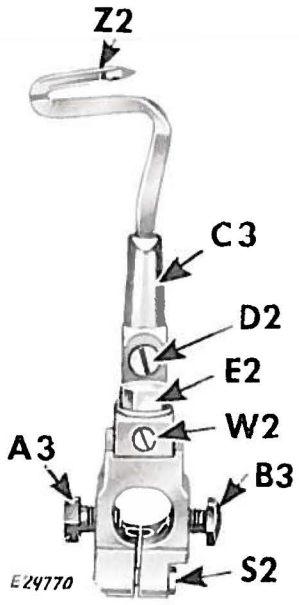


Fig. 33. Left Looper Assembly

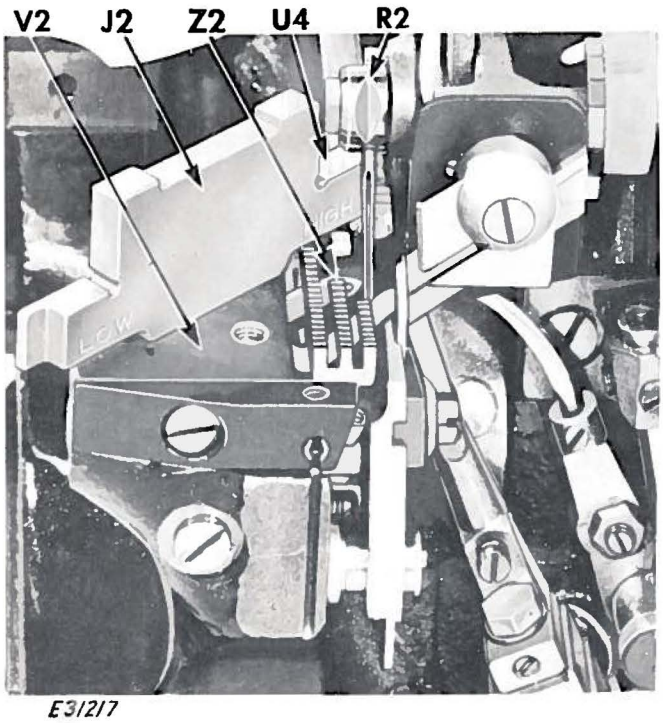


Fig. 34. Setting

PREPARATION:

Check needle with needle gauge **164588** as instructed on **page 6.**

Set the needle correctly as instructed on **page 7.**

Remove throat plate and chip guard.

Loosen set screw **D2, Fig. 33** in left looper holder **C3.**

Set left looper **Z2, Fig 34** all the way down into its holder.

Securely tighten set screw **D2.**

CHECKING LEFT TO RIGHT POSITION:

Place gauge **J2** on throat plate seat **V2** as shown in **Fig. 34.**

Turn machine pulley over away from you until needle clamp **R2** reaches its lowest position and then rises sufficiently to permit "HIGH" end of gauge **J2** to pass between needle clamp **R2** and throat plate seat, as shown in **Fig. 34.**

When needle clamp **R2** just contacts top surface **U4** of gauge, the **tip of left looper Z2 should be between centre and left side of needle.**

SETTING LEFT TO RIGHT POSITION:

Loosen screw **S2, Fig. 33.** (This screw may not be present on some machines.)

To move left looper **Z2** toward **left, loosen screw A3** and carefully tighten screw **B3, Fig. 33** an equal amount as required.

To move left looper **Z2** toward **right, loosen screw B3** and carefully tighten screw **A3** an equal amount as required.

Recheck. When correct setting is obtained, securely tighten clamping screw **S2.**

CHECKING FRONT TO REAR POSITION:

Turn machine pulley so that loopers move through one complete sewing cycle. Observe looper movement.

The left looper **must rub lightly on the needle** as it passes toward the right.

SETTING FRONT TO REAR POSITION:

Turn machine pulley over from you until point of looper **Z2** just reaches needle.

Loosen screw **E2, Fig. 33 just enough** to allow movement of looper holder **C3.**

Loosen set screw **W2, Fig. 33.**

Move looper holder **C3** toward rear of machine. Turn set screw **W2 inward** until proper relation between left looper and needle is obtained. Securely tighten screw **E2.**

Replace throat plate and chip guard.

TO SET THE RIGHT LOOPER OR THE SPREADER IN RELATION TO THE NEEDLE

Using Gauge 164592
(See Figs. 35 to 37)

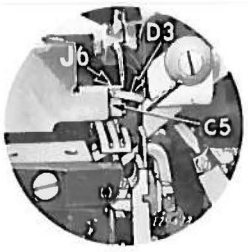


Fig. 35
Right Looper, Three-Thread Machines

Fig. 36
Spreader, Two-Thread Machines

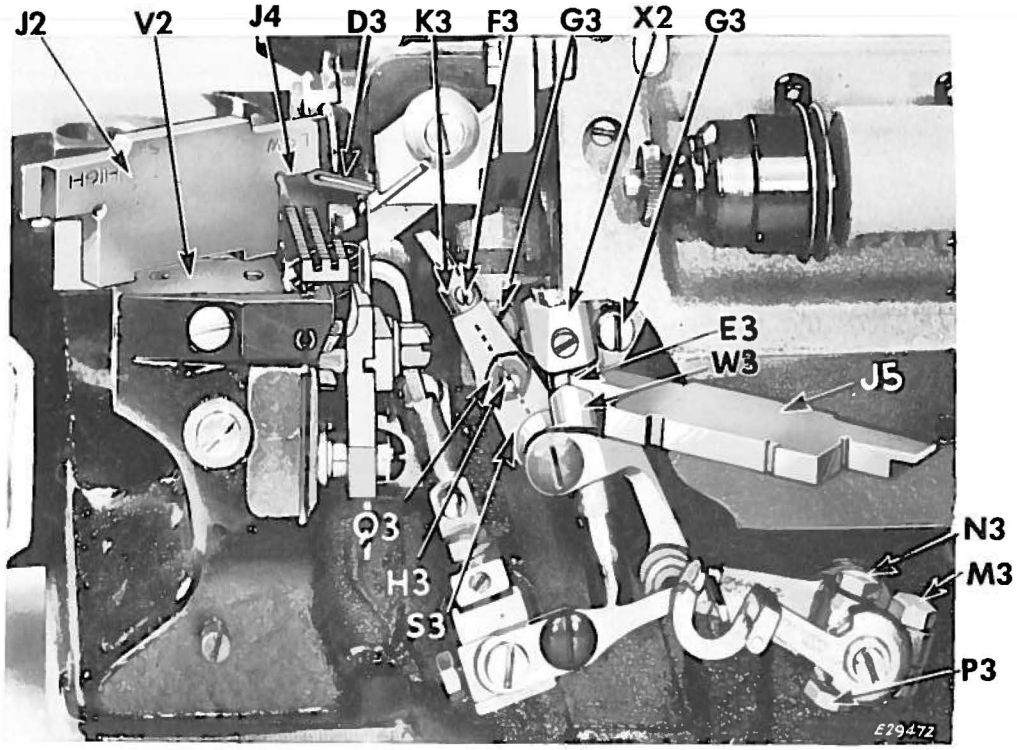


Fig. 37. Adjustments

PREPARATION:

Right looper **164055 (Fig. 35)** is used for three-thread stitch.

Spreader **164252 (Fig. 36)** is used for two-thread stitch.

Flip up the gathering attachment.

Swing presser foot and cloth plate to the left.

Remove chip guard and looper thread plate, complete.

Check the needle with needle gauge **164588,** as instructed on **page 6.** Set the needle correctly, as instructed on **page 7.**

CHECKING CLEARANCE BETWEEN LOOPER CARRIER CONNECTION AND GUIDE BAR BRACKET:

Turn machine pulley until right looper (or spreader) **D3** is at its extreme left position.

Check distance **E3** between looper carrier connection **W3** and guide bar bracket **X2, Fig. 37** with gauge, as shown at **J5, Fig. 37.** Check this distance with "HIGH" and "LOW" ends of gauge.

CLEARANCE ADJUSTMENT:

Loosen clamping screw **M3** and screws **N3** and **P3.**

Raise or lower right hand looper carrier connection **W3,** as required. Securely tighten screw **M3.** Tighten screws **P3** and **N3.**

CHECKING RIGHT TO LEFT POSITION:

Hold gauge so that end marked **"HIGH"** on gauge just touches left side of needle, as shown at **J6** in **Figs. 35** and **36.**

When right looper (or spreader) **D3** is at its extreme left position, it should just touch surface **C5** on gauge, as shown in **Figs. 35** and **36.**

At this setting bracket **X2, Fig. 37** should be approximately at midpoint of its extreme left to right positions on casting.

ADJUSTMENT OF RIGHT TO LEFT POSITION:

Loosen the two screws **G3** and move bracket **X2,** as required, to bring right looper (or spreader) **D3** in correct contact with gauge surface **C5.**

Securely tighten two screws **G3.**

CHECKING HEIGHT:

Place gauge **J2** firmly upon throat plate seat **V2** with end marked **"LOW"** toward needle, as shown in **Fig. 37.**

When right looper (or spreader) **D3** is at its extreme left position its highest point should **just touch** undersurface **J4** on gauge, as shown.

ADJUSTMENT FOR HEIGHT:

When installing a right looper (or spreader), loosen nut **Q3, Fig. 37** and turn screw **H3** anti-clockwise to align the screwdriver slot in head of screw **H3** with centre-line of looper carrier **S3,** as shown in **Fig. 37.** Then loosen screw **F3.** Place collar **K3** on looper shank and insert right looper in looper holder **G3,** as shown in **Fig. 37.**

Adjust the height of the right looper (or spreader), in the following manner—

Loosen screw **F3** and nut **Q3, Fig. 37.**

Raise or lower right looper (or spreader) **D3** in carrier as required.

Press collar **K3** firmly against top of carrier **S3.**

Securely tighten screw **F3** and nut **Q3.**

CHECKING FRONT TO REAR POSITION:

Turn machine pulley over away from operator through one full revolution. Observe position of right looper (or spreader) in relation to needle during this full movement.

Right looper (or spreader) **D3** should pass behind left looper head and in front of needle; brushing lightly on needle.

ADJUSTMENT OF FRONT TO REAR POSITION:

Loosen nut **Q3, Fig. 37.**

Turn right looper (or spreader) **D3** in carrier **S3** as required.

Securely tighten nut **Q3.**

Recheck each setting and securely fasten all parts loosened earlier.

TO SET NEEDLE THREAD CONTROLLER

(See Figs. 38 and 39)

Needle Thread Controller **164151 (J3, Fig. 38)** is used for **three-thread tight stitch.**

Needle Thread Controller **164381 (J3, Fig. 39)** is used for **two-thread** stitch and for **purl-on-the-edge** stitch.

FUNCTION:

The needle thread controller **J3** should aid in the setting of the stitch by taking up the slack of needle thread as the needle finishes its downward stroke; thus setting the stitch as the needle thread loop is shed from the loopers.

When needle is at its highest position, needle thread should run under clearance **U3** of needle thread controller **J3,** as shown in **Fig. 38** or in fork **U3** of controller **J3,** as shown in **Fig. 39.**

VARIATIONS: The desired setting for needle thread controller may vary with changes in thread, special fittings or materials in use.

ADJUSTMENT:

Swing presser bar **A2** and cloth plate **Q** out to the left.

Remove screws **X5** and oil splash guard **Z5.**

Turn machine pulley over away from operator until needle is at its highest position.

Loosen the two screws **V3** and move needle thread controller **J3 toward the front to tighten the stitch or toward the rear to loosen the stitch, as required.** Then tighten the two screws **V3** and recheck the stitch setting.

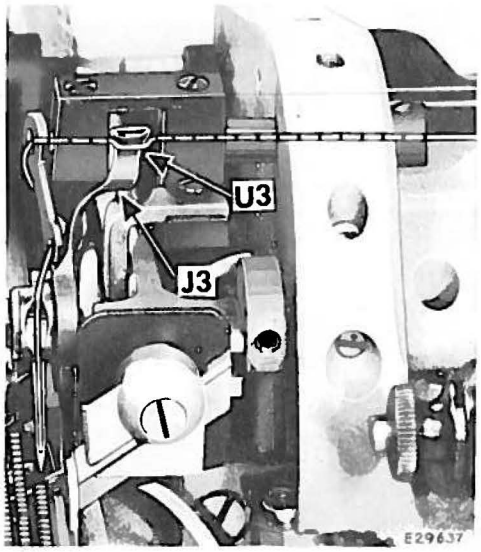


Fig. 38 Needle Thread Controller 164151 in Correct Relation to Needle Thread

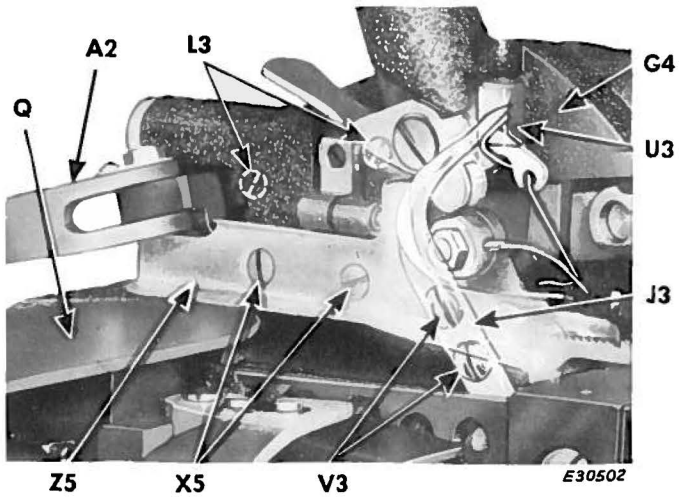


Fig. 39. Needle Thread Controller 164381 in Correct Relation to Needle Thread

Figs. 38 and **39** show the correct position of the needle thread as it passes the needle thread controller **J3.** To check this condition, remove two screws **L3** and presser bar housing **G4.**

After making certain that needle thread is in the correct position, replace presser bar housing **G4** with two screws **L3.**

Replace splash guard **Z5** with two screws **X5.**

TO ADJUST THE LOOPER THREAD TAKE-UP

(See Figs. 40 and 41)

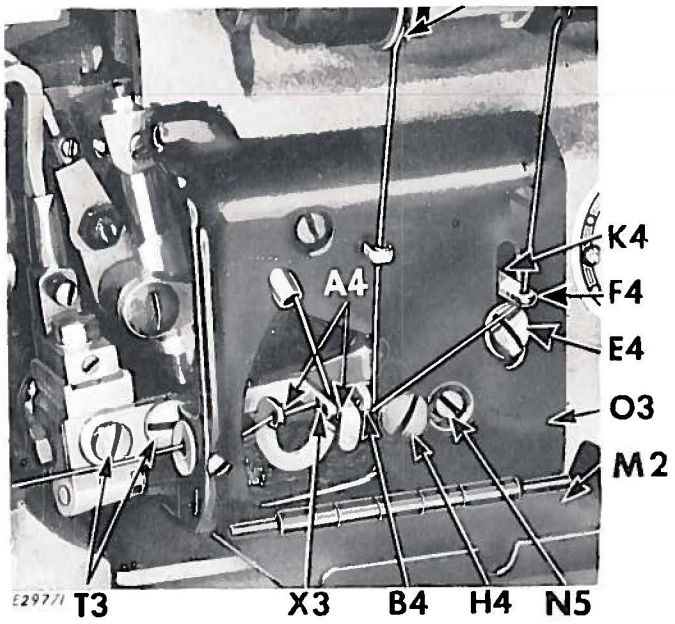


Fig. 40. Adjustments on Take-up for Two Thread Stitch and Three Thread Tight Needle Thread Stitch

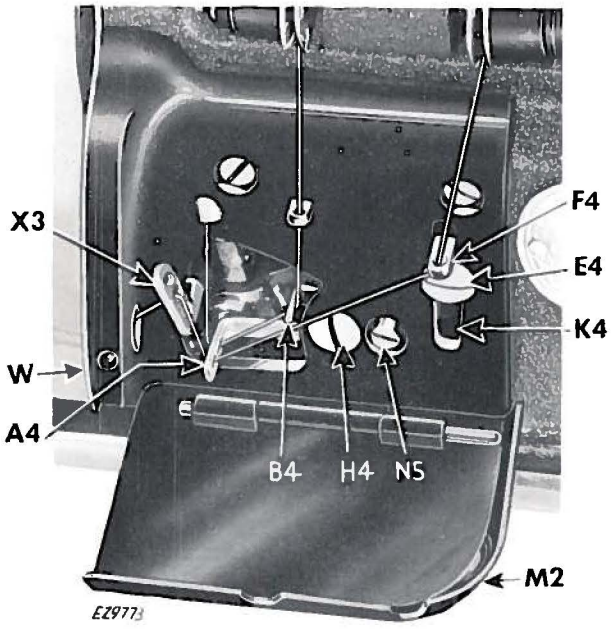


Fig. 41. Adjustments on Take-up for Purl-on-the-edge Stitch

ADJUSTING LOOPER THREAD TAKE-UP (LEFT) X3 FOR MORE OR LESS THREAD:

Remove the chip guard **W, Fig. 41** and open the front cover plate **M2.** Loosen the two screws **T3, Fig. 40** and raise or lower the right end of the left take-up **X3,** as required.

Securely tighten the screws **T3** and replace the chip guard **W.**

SETTING LOOPER THREAD EYELET (LEFT):

The looper thread eyelet **F4** should be normally at the **midpoint** of the slot **K4, Fig. 40.**

To adjust the looper thread eyelet, loosen the screw **E4** and raise or lower the eyelet **F4** to the proper location. Then securely tighten the screw **E4.**

SETTING LOOPER THREAD TAKE-UP (RIGHT):

To set the right take-up **A4,** open the front cover plate and loosen the screw **N5, Figs. 40** and **41.** Raise or lower the right take-up **A4,** as required. **Do not permit** take-up **A4** to interfere with other moving parts nor to hit the cover **M2.** Then securely tighten the screw **N5** and close the cover plate **M2.**

SETTING LOOPER THREAD STRIPPER

The looper thread stripper **B4** normally should be at the **midpoint** of the top and bottom extremes of its adjustment, as shown in **Figs. 40** and **41.**

To set the looper thread stripper, open the front cover plate **M2** and loosen the screw **H4.** Raise or lower the stripper **B4,** as required. Then securely tighten the screw **H4** and close the cover plate **M2.**

Make certain that none of these adjustments cause take-up components to strike one another or the cover M2.

TO REMOVE AND REPLACE THE KNIVES

(See Figs. 42 and 43)

REMOVING STATIONARY KNIFE L4:

Loosen the screw **V4, Fig. 44, page 23,** and draw the knife **L4, Fig. 42** upward and out.

REPLACING STATIONARY KNIFE L4:

Push the knife **L4** downward in the knife holder **S4,** until the cutting edge of the knife **L4** is at the same level with the top surface of throat plate **U2.** Then securely tighten the screw **V4, Fig. 44.**

REMOVING MOVABLE KNIFE D4:

Remove the clamp screw **Q4, Fig. 42** with the chip ejector **O4,** the knife guard **C4** and the knife clamp **Z3. Lift the knife D4 from the knife holder P4.**

REPLACING MOVABLE KNIFE D4:

Slip the knife in knife holder **P4,** replace the knife clamp **Z3,** the knife guard **C4,** the chip ejector **O4,** and the clamp screw **Q4.** Press the movable knife **D4** downward against the stationary knife **L4, Fig. 42** and securely tighten the clamp screw **Q4.**

Turn the machine pulley over away from you, until the lowest point **X4, Fig. 43,** of the cutting edge of the movable knife **D4,** just reaches the cutting edge of the stationary knife **L4,** as shown in **Fig. 43.** Loosen the screw **T4** sufficiently to release the spring behind the stationary knife **L4** permitting the stationary knife to make a tight spring contact with the movable knife **D4.** Then securely tighten the screw **T4.**

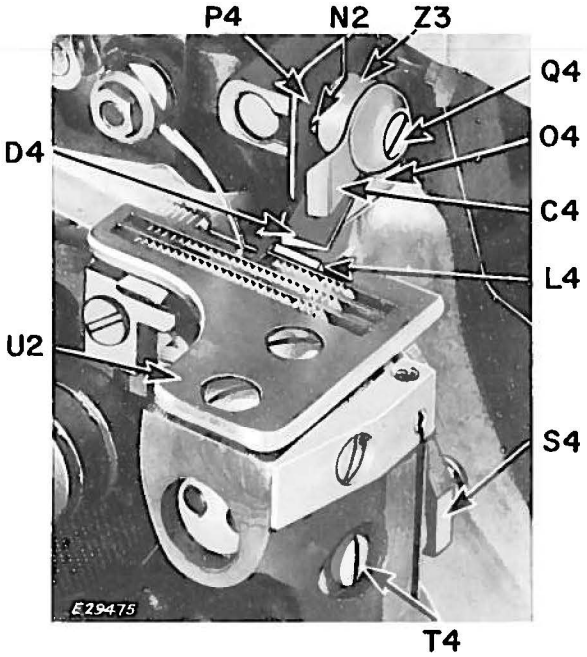


Fig. 42. Removal and Replacement of Knives

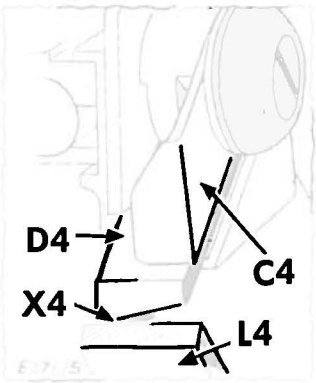


Fig. 43. Contact Point of Knives

TO ADJUST THE TRIMMER

SETTING HEIGHT OF THE STATIONARY KNIFE:

Loosen screw **V4, Fig. 44, page 23.**

Raise or lower the knife **L4, Fig. 42** in the knife holder **S4,** until the cutting edge of the knife is at the same level as top surface of the throat plate **U2.**

Then securely tighten screw **V4, Fig. 44.**

TO ADJUST THE TRIMMER (CONTINUED)

(See Fig. 44)

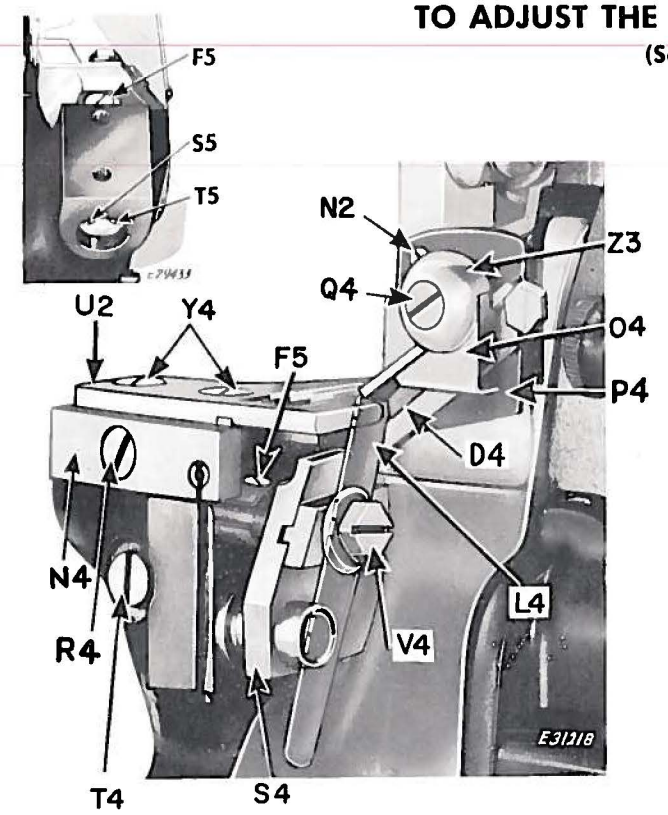


Fig. 44. Adjusting Width of Bight

WIDTH OF BIGHT:

The position of the stationary knife blade **L4** in relation to the needle determines the width of bight.

For some types of work, the width of bight must conform to the width of the chaining-off finger.

Before setting stationary knife for width of bight, loosen screw Q4, Fig. 44 and slide movable knife D4 up in its holder out of possible contact with stationary knife. Tighten screw Q4.

SETTING STATIONARY KNIFE FOR WIDTH OF BIGHT:

To change the width of bight, loosen the screw **T4** and move the stationary knife holder **S4** toward the left or right, as required. Securely tighten the screw **T4.**

Return movable knife **D4** to its correct position; setting it in relation to the stationary knife as described next.

SETTING MOVABLE KNIFE IN RELATION TO THE STATIONARY KNIFE POSITION:

Remove the clamp screw **Q4,** the chip ejector **O4,** the knife guard **C4** and the knife clamp **Z3.** Loosen the screw **N2** and move the knife holder assembly **P4** toward the right or left as required to bring the cutting edge of the movable knife **D4,** at its lowest position, slightly below the cutting edge of the stationary knife **L4,** as shown in **Fig. 44.** Securely tighten the screw **N2.** Then replace the knife clamp **Z3,** the knife guard **C4,** the chip ejector **O4** and the clamp screw **Q4.** Then lightly press the movable knife **D4** downward against the stationary knife **L4** and tighten the screw **Q4.**

Loosen the screw **T4** sufficiently to release the spring behind the stationary knife **L4,** permitting the stationary knife to make a tight spring contact with the movable knife **D4.** Then securely tighten the screw **T4.**

When knives require sharpening they may be removed as instructed on **page 22** and sharpened as instructed on **page 24.**

ANGULAR ADJUSTMENT:

To trim efficiently, the knives must contact each other at all points along the cutting edges.

To adjust, remove two screws **Y4, Fig. 44** and remove the throat plate. Remove screw **R4** and guide **N4.**

> **NOTE:** On machines fitted with a needle guard, this guard must also be removed. When replacing needle guard, set it so that needle will just brush guard as needle descends.

Remove feed dog. Loosen screws **S5, T5** and **F5, Fig. 44.**

Align lower knife **L4** with upper knife **D4** and securely tighten screw **F5.**

Tighten screws **S5** and **T5.**

TO SHARPEN THE TRIMMER KNIVES

(See Figs. 45 and 46)

Knife Grinding Machine 701-9 is necessary for sharpening the knives used on **Machines of Class 246K.** The use of this grinder insures the correct bevel of the cutting edge of each knife.

Do not attempt to sharpen these knives by hand.

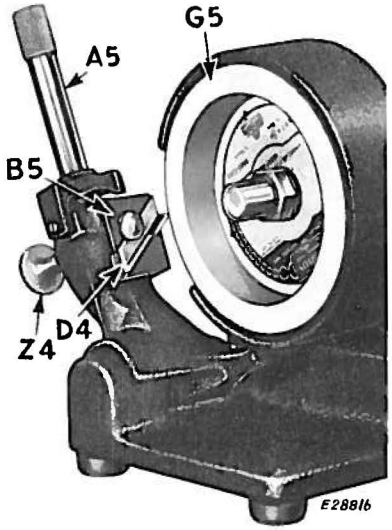


Fig. 45. Sharpening the Movable Knife

SHARPENING MOVABLE KNIFE D4:

Insert knife **D4, Fig. 45** in knife holder **B5, Fig. 45** on front of lever arm **A5.** Allow approximately **1/16** inch of the knife to extend beyond holder, for grinding. Then tighten thumb screw **Z4, Fig. 45.**

Turn thumb nut **E5, Fig. 46** over from you until knife **D4 clears** the grinding face **G5, Fig. 45.** While moving lever arm **A5** alternately back and forth, turn thumb nut **E5** as required, to bring the cutting edge of the knife **lightly** against the grinding face of the wheel.

Continue the back and forth motion of the lever arm, grinding off **only** enough to sharpen the cutting edge.

The movable knife is thus ground to a shearing edge, requiring no special setting in the machine to shear.

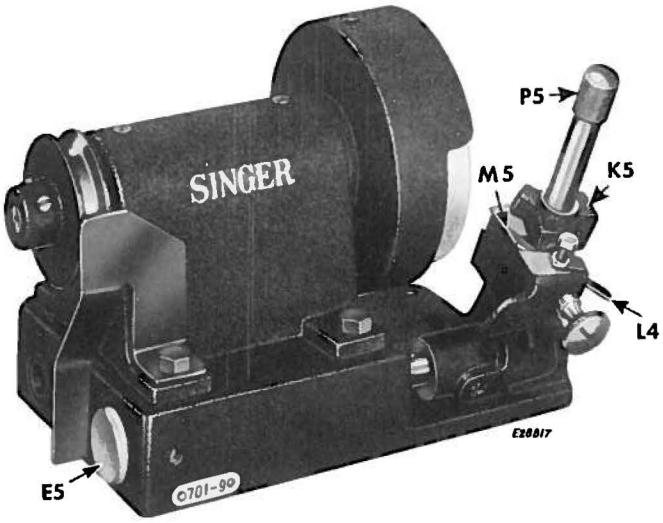


Fig. 46. Sharpening the Stationary Knife

SHARPENING STATIONARY KNIFE L4:

Insert knife **L4, Fig. 46** in knife holder **K5,** on rear of lever arm, so that its bevel **M5** is parallel with grinding face **G5, Fig. 45** of grinding wheel. Allow approximately **1/16** inch of the knife to extend beyond holder, for grinding. Then by turning knurled end **P5, Fig. 46** of lever arm, screw lever arm into knife holder **K5,** securing the knife. Sharpen the stationary knife as instructed above.

PARTS LIST

FOR

SINGER*

INTERMITTENT GATHERING MACHINE

246k46

INSTRUCTIONS FOR ORDERING

In ordering from this List, the part number MUST BE quoted exactly as shown in the first column. A number always indicates the same part in whatever List it may appear, or for whatever machine. The code numbers (where shown) indicate the style of finish, as follows:—

Code No.	Description
801	Hardened, Polished, Nickel Plated and Buffed.
802	Polished, Nickel Plated and Buffed.
803	Hardened only.
804	Polished only.
805	Soft, not Polished.
806	Hardened and Polished.
807	Bright Rumbled and Nickel Plated.
808	Blued.
809	Nickel Plated only.
810	Hardened and Nickel Plated.
811	Brass Plated.
812	Oxidized.
813	Phosphate Coating Formed on Surface of Iron or Steel.
814	Cadmium Plated.
815	Copper Plated.
816	Zinc Plated.
817	Silver Plated.
818	Polished and Nickel Plated.
819	Black Oxide for Iron and Steel.
820	Black Nickel Plated only.
821	Chromium Plated.
822	Buffed and Chromium Plated.
823	Hardened, Polished, Buffed and Chromium Plated.
824	Hardened, Bright Rumbled and Nickel Plated.
825	Hardened, Bright Rumbled, Nickel Plated, Bright Rumbled and Chromium Plated.
826	Alumilite (Plain).
827	
828	Polished, Nickel Plated and Chromium Plated.
829	Hardened, Polished, Nickel Plated and Chromium Plated.
830	Heat Treated for Toughness.
831	Heat Treated for Toughness and Polished.
832	Heat Treated for Toughness and Nickel Plated.
833	Heat Treated for Toughness and Black Oxide.
834	Heat Treated for Toughness, Polished, Nickel Plated, Buffed and Chromium Plated.
835	
836	
837	
838	
839	Chrome Nickel, Satin Finish.
840	Hardened and Chrome Nickel, Satin Finish.
841	Hardened and Phosphate Coating Formed on Surface of Steel.
842	Hardened and Zinc Plated.
843	Hardened, Polished and Nickel Plated.
844	Hardened, Polished, Copper and Nickel Plated and Buffed.
845	Copper and Nickel Plated and Polished.
846	Copper and Nickel Plated only.
847	Hardened, Copper and Nickel Plated.
848	Copper and Brass Plated.
849	Copper Plated and Oxidized.
850	Hardened and Black Oxide for Iron and Steel.
851	Hardened, Polished, Nickel Plated, Buffed and Chromium Plated.
852	Polished, Nickel Plated, Buffed and Chromium Plated.
853	Hardened and Chromium Plated.
854	Polished and Chromium Plated.
855	Bright Rumbled, Nickel Plated, Bright Rumbled and Chromium Plated.

INSTRUCTIONS FOR ORDERING—Continued.

Code No.	Description
856	Nickel and Chromium Plated.
857	Copper and Chromium Plated.
858	Heat Treated for Toughness, Nickel and Chromium Plated.
859	Heat Treated for Toughness, Copper Plated and Oxidized.
860	Nickel Plated and Buffed only.
861	Alumilite (dyed)—Black.
862	" (")—Light Almond Green.
863	" (")—Dark Brown.
864	" (")—Russet Brown.
865	" (")—Dark Green.
866	" (")—Medium Gold.
867	Nickel-Satin Finish.
868	Hardened and Nickel-Satin Finish.
869	Commercial Finish for Allen Type Screws.
870	Hard Coating on Aluminium.
871	Brass Plated and Clear Laquered.

Code No.	Paint Colours	Code No.	Paint Colours
701	Gloss Black.	734	Pale Red.
702	Dull Black.	735	Emerald Green.
703	Brown.	736	Green Metallic.
704	Grey Wrinkle.	737	Light Beige Satin Matte.
705	Beige Wrinkle.	738	Copper Tan.
706	Black Wrinkle.	739	Buff.
707	Light Green.	740	White.
708	Dark Green.	741	Dark Fawn.
709	Dark Beige.	742	Plum.
710	Light Beige.	743	Birch Brown.
711	Oyster White.	744	Satin Black.
712		745	Gold-Buff.
713	Bright Cherry Red.	746	Blue-Grey.
714	Light Ivory.	747	Medium Gold.
715	Peacock Blue.	748	Sand.
716	Bright Yellow.	749	Khaki.
717	Slate Grey.	750	Flame Red.
718	Deep Brown.	751	Brite Green.
719		752	Sage Green.
720	Dark Brown.	753	Mist Green.
721	Aluminium.	754	Ice Green Metallic.
722	Dark Grey.	755	Dark Beige Metallic.
723	Light Grey Beige.	756	Shell Pink.
724	Rosewood Brown.	757	Surf Green.
725	Light Bisque.	758	Colonial Rose.
726	Light Fawn.	759	Cream.
727		760	Oak Brown.
728	Grey Metallic.	761	Deep Fawn.
729	Russet Brown.	762	Medium Green.
730	Pale Green.	763	Light Green Metallic.
731	Light Almond Green.	764	Light Gold.
732	Dusty Bisque.	765	Persimmon.
733	Chocolate Brown.	766	Mahogany Brown.

PARTS MARKED THUS (✣) ARE FURNISHED ONLY WHEN THE REPAIRS ARE MADE AT FACTORY.

Parts Complete for Machine No. 246K46

FOR INTERMITTENT GATHERING ON LIGHT AND MEDIUM WEIGHT FABRICS. ONE NEEDLE. TWO LOOPERS. CONTROLLED GATHERING FEED. TRIMMER. TWO-THREAD OVEREDGE STITCH TYPE 503. BIGHT FROM 1/16″ TO 7/32″. STITCHES MATERIAL UP TO 3/16″. SPEED UP TO 5,500 S.P.M. DEPENDING ON MATERIAL USED AND OPERATION PERFORMED.

A FOOT LIFTER AND KNEE LIFTER ARE SUPPLIED WITH MACHINE, ONE USED FOR PRESSER BAR LIFTER, THE OTHER CONTROLLING GATHERING MECHANISM OR STITCH SHORTENING DEVICE.

Part No.	Plate	Description
164001	24855	Chip Guard
1209-809	24855	" " Screw (lower)
140509-809	24855	" " " (upper)
164593	24855	Cloth Plate
164002-701	24855	" " Extension
51408-809	24855	" " " Screw
1700-809	24855	" " " " Nut
931084	24855	" " " " " Lock Washer
164205	24855	" " Lock Spring
1700-809	24855	" " " " Nut
931084	24855	" " " " " Lock Washer
1250-830	24855	" " " " Screw Stud
164104	24855	" " Plunger
164105	24855	" " " Spring
624-830	24855	" " " Set Screw
164106	24855	" " Position Collar with two 624-830
624-830	24855	" " " " Set Screw
164594	24855	Cloth Plate with Extension, complete, Nos. 164002-701, 164205, 164593, two each 1700-809, 51408-809 and 931084
164003	3083	Feed Bar Hinge Pin (eccentric)
164686	3083	" " " " Collar with two 735-830
735-830	3083	" " " " " Set Screw
1389-830	3083	" " " " Set Screw
164004	3083	" " Slide Block (back)
1628-803	3083	" " " " (") Nut
17022	3083	" " " " (") " Washer
164005	3083	" " " " (front)
164687	3083	" (back) Bar with 164010
164007	3083	" (") " Connection
164008	3083	" (") " " Bearing
164009	3083	" (") " " Hinge Screw Stud
1671-803	3083	" (") " " " " " Nut
164010	3083	" (") " " " " " Position Pin
164688	—	Feed (back) and (front) Bars with Controlling Lever, complete, Nos. 164005 to 164009, 164664, 164665, 164687, 164690, 164694, 164698, two each 1671-803 and 164004
164866	3084	Feed (back) Dog Section (left)
164012	3084	" (") " " (right)
1100-830	3084	" (") " " (") Screw
164867	3084	" (") Dog, complete, Nos. 1100-830, 164012 and 164866

PARTS FOR MACHINE No. 246K46

Part No.	Plate	Description
1454-806	—	Feed (back) Dog Screw
164915	3083	" (") Eccentric

NOTE.—Feed (back) Eccentric No. 164915 is furnished in 4 to 16, 18, 20, 22, 24, 28, 32, 36, 40, 45, 50, 60, 70, 80 and 100 stitches to the inch. Unless otherwise stated, No. 164915 (14 stitches to the inch) is supplied regularly.

164006	3083	Feed (front) Bar with 164010
165110	3084	" (") Dog
164690	3083	" (") " Controlling Lever
164691	3093	" (") " " " Ball Joint
164692	3093	" (") " " " " " Position Plate (back)
164693	3093	" (") " " " " " Position Plate (front)
190-819	3093	" (") " " " " " Position Screw
164694	3083	" (") " " " Connection
164664	3083	" (") " " " " Bearing
164665	3083	" (") " " " " Hinge Screw Stud
1671-803	3083	" (") " " " " " Screw Stud Nut
164010	3083	" (") " " " " Hinge Screw Stud Position Pin
164695	3083	" (") " " " Connection Stud
1700-819	3083	" (") " " " " " Nut
164696	3083	" (") " " " Segment
164697	—	" (") " " " " 164696 with 164700 and two 50388-830
164698	—	" (") " " Lever Segment 164697 with 1454-806 and 164701 to 164703
164699	3083	" (") " " Lever Segment Bracket
164700	—	" (") " " " " " 164699 with 1700-819 and 164695
164701	3083	" (") " " " Segment Guide
164702	3083	" (") " " " " " Adjusting Cam
164703	3083	" (") " " " " " Adjusting Cam Roller
1454-806	3083	" (") " " " " " Adjusting Cam Roller Screw
50388-830	3083	" (") " " " Segment Screw
1454-806	—	" (") " Screw
164915	3083	" (") Eccentric

NOTE.—Feed (front) Eccentric No. 164915 is furnished in 4 to 16, 18, 20, 22, 24, 28, 32, 36, 40, 45, 50, 60, 70, 80 and 100 stitches to the inch. Unless otherwise stated, No. 164915 (6 stitches to the inch) is supplied regularly.

164520	3083	Feed Eccentric Cover
164704	3083	" " " Bracket
164705	—	" " " " 164704 with 164023
157-803	3083	" " " " Screw
629-810	3083	" " " Hinge Screw

PARTS FOR MACHINE No. 246K46

Part No.	Plate	Description
164401	3083	Feed Eccentric Cover Latch Spring
227-809	3083	" " " " " Screw
164023	3083	" " Oil Wick
164706	3083	Feed Eccentric Cover, complete, Nos. 629-810, 164401, 164520, 164705 and two 227-809
164949	3092	" Lifting and Knife (movable) Eccentric
164707	3093	Gathering Device Indicator Plate
140077-819	3093	" " " " Screw (4)
164708	3093	" " Lever and Indicator
164856	—	" " " " " 164708 with 164691 to 164693 and two 190-819
103-819	3093	" " " " Indicator Chain Screw
164709	3093	" " " " " Extension
50117-819	3093	" " " " " " Screw
50113-819	—	" " " " " " Stop Screw
164710	3093	" " " " " Guide Plate
140764-819	3093	" " " " " " " Screw
140185-819	3093	" " " " " Hinge Screw
164711-819	3093	" " " " " Spring
50101-819	3093	" " " " " " Screw
164712	3093	" " " " " Stop (lower)
1209-819	3093	" " " " " " (") Screw
1547-819	3093	" " " " " " (") " Nut
164713	3093	" " " " " " (upper)
1209-819	3093	" " " " " " (") Screw
1547-819	3093	" " " " " " (") " Nut
164871	3084	" Plate (swing-up)
164872	3084	" " (") Holder
164873	3084	" " (") " Housing with 50292-803
1517-809	3084	" " (") " " Nut
442-830	3084	" " (") " " Stop Screw
1628-809	3084	" " (") " " " " Nut
164874	3084	" " (") " " Support
50409-803	3084	" " (") " " " Hinge Screw
49204	3084	" " (") " " " " Hinge Screw Friction Washer
1655-809	3084	" " (") " Housing Support Hinge Screw Nut
164875	3084	" " (") " " Support Joint
1259-830	3091	" " (") " " " Set Screw
1264-803	3084	" " (") " Stop Screw
164876	3084	" " (") Lifter
50318-809	3084	" " (") " Adjusting Screw
1772-809	3084	" " (") " " " Nut
164886	3084	" " (") " Lever (adjustable) with 1772-809 and 50318-809
140180-809	3084	" " (") " Lever Screw
50169-803	3084	" " (") " Screw
165034	3084	" " (") Lifting Lever with 853-830
853-830	3084	" " (") " " Set Screw
217-809	3084	" " (") Screw
164877	—	" " (") Tension Spring
164878	3084	" " (") " " Pressure Adjusting head (Hexagon)

Part No.	Plate	Description
50292-803	3084	Gathering Plate (swing-up) Tension Spring Pressure Adjusting Head Set Screw
164880	3084	Gathering Plate (swing-up) with Holder, Holder Housing and Housing Support, Nos. 217-809, 442-830, 1264-803, 1517-809, 1628-809, 1655-809, 49204, 50409-803, 140180-809, 164871 to 164878, 164886, 165034 and two 50169-803
164550	3089	Knife (movable) (2) (1 in machine, 1 sent as spare)
164027	3089	" (") Clamp
140050-803	3089	" (") " Screw
164028	3089	" (") Guard (lower)
164458	3089	" (") " (upper)
164029	3089	" (") Holder
198-809	3089	" (") " Screw
164030	3089	" (") " " Bearing
164950	3089	" (") Lever with 620-830
164951	—	" (") " 164950 with 132583, 164035, 164136 and 164963
164032	3089	" (") " Bearing
447-830	3089	" (") " " Set Screw (long)
624-830	3089	" (") " " " " (short)
164373-728	3091	" (") " Cover and Presser Bar (upright) Housing with 1259-830
50073-809	3091	" (") " " and Presser Bar (upright) Housing Screw (2)
164716	—	Knife (movable) Lever Cover and Presser Bar (upright) Housing, complete, Nos. 50060-810, 164137, 164139, 164142 to 164144, 164194, 164373-728 and 164723
164180	3089	Knife (movable) Lever Guide
164181	3089	" (") " " Holder with two 140239-830
164210	3089	" (") " " " 164181 with 197-809, 164177, 164180 and 164182
164182	3089	" (") " Guide Holder Thread Tube
140239-830	3089	" (") " " " " " Set Screw (holder end)
447-830	3089	" (") " " " " " Set Screw (machine frame end)
197-809	3089	" (") " " Screw
132583	3089	" (") " Hinge Pin with 132584
132584	3089	" (") " " " Oil Wick
620-830	—	" (") " " " Set Screw
164034	3089	" (") " " Stud
164035	—	" (") " " " 164034 with 164036 and 164269
164036	3089	" (") " " " Oil Wick (long)
164269	—	" (") " " " " " (short)
447-830	3089	" (") " " " Set Screw (back)
1143-830	3089	" (") " " " " " (top)
164728	3089	" (stationary) (2) (1 in machine, 1 sent as spare)
164744	3089	" (") Clamping Gib
140788-803	3089	" (") " " Screw
3146	3089	" (") " " " Washer
164746	3089	" (") Holder

PARTS FOR MACHINE No. 246K46

Part No.	Plate	Description
164747	—	Knife (stationary) Holder (adjustable) complete, Nos. 742-806, 164745 and 164746
164748	3089	Knife (stationary) Holder (adjustable) with Gib, complete, Nos. 3146, 140788-803, 164744 and 164747
164590	3089	Knife (stationary) Holder Adjusting Stud
190-805	3089	" (") " " " Cap Screw
39541	3089	" (") " " " " " " Washer
164745	3089	" (") " Body with two 50611-803
50611-803	3089	" (") " Position Screw
742-806	3089	" (") " Screw
164042	3089	" (") " Sleeve
140088-805	3089	" (") " " Screw
175032	3089	" (") " " " Washer
164043	3089	" (") " Spring
164525	3089	" (") " " Stud
164462	3089	Lint Stripper with 735-830
735-830	3089	" " Set Screw
164045	3090	Looper (left hand)
164046	3090	" (" ") Carrier with 460-830, 50379-806 and 164206
164660	3090	" (" ") " Holder with 1083-803, 140393-830 and 140596-830
164661	—	" (" ") " " 164660 with 1324-803, 59456 and 164046
1083-803	3090	" (" ") " " Clamping Screw
140596-830	3090	" (" ") " " Set Screw (left)
140393-830	3090	" (" ") " " " " (right)
1324-803	3090	" (" ") " Screw
460-830	3090	" (" ") " " Set Screw
59456	3090	" (" ") " " Washer
164048	3090	" (" ") Driving Shaft
164049	3090	" (" ") " " Bushing (back)
140394-805	3090	" (" ") " " " (") Cap Screw
164293	3090	" (" ") " " " (") " " Washer (fibre)
164737	3090	" (" ") " " " (front)
164051	3090	" (" ") " " Crank with 1083-803
1083-803	3090	" (" ") " " " Clamping Screw
164052	3092	" (" ") " " " Connection with two each 171-830 and 140159-830
171-830	3092	" (" ") " Shaft Connection Cap (lower) Screw
140159-830	3092	" (" ") " " " " (upper) Screw
164215	—	" (" ") " " Crank 164051 with 164052
164067	3090	" (" ") " " " Key
1324-803	3090	" (" ") " " " " Screw
45057	3090	" (" ") " " " " " Washer
164053	3090	" (" ") " " " Thrust Bearing
164739	3090	" (" ") " " Oil Ring (rubber)
164740	3090	" (" ") " " " " Spacer

PARTS FOR MACHINE No. 246K46

Part No.	Plate	Description
50379-806	3090	Looper (left hand) Set Screw
164202	3090	" (" ") Stop Pin
165055	3084	" (" ") Thread Tube
853-830	3084	" (" ") " " Set Screw
164055	3090	" (right hand)
164056	3090	" (" ") Carrier with 50370-830
164828	3090	" (" ") " Connection
164829	—	" (" ") " " and Guide Bar Nos. 1700-809, 50420-830, 164785, 164786 and 164828
164952	3090	Looper (right hand) Carrier Connection Guide Bar Bracket with 462-830 and 51369-803
51369-803	3090	" (" ") Carrier Connection Guide Bar Bracket Clamping Screw
914-803	3090	" (" ") " " Guide Bar Bracket Screw (left)
1057-830	3090	" (" ") " " " " Bracket Screw (right)
164785	3090	" (" ") " " " " Oil Controlling Screw Seat (brass)
50420-830	3090	" (" ") " Connection Guide Bar Oil Plug Screw
1700-809	3090	" (" ") " " " " " Plug Screw Nut
164786	3090	" (" ") " " " " Oil Wick
462-830	3090	" (" ") " " " " Set Screw
164061	—	" (" ") " " Hinge Stud with 1019-830
1443-809	3090	" (" ") " " " " Cap Screw
164397	3090	" (" ") " " " " Adjusting Pin
1019-830	—	" (" ") " " " " Adjusting Pin Set Screw
132565	3090	" (" ") " Hinge Pin
165000	—	" (" ") " " " Oil Pad (felt)
50370-830	3090	" (" ") " " " Set Screw
164062	3090	" (" ") Driving Lever with 1083-803 and two 140596-830
164953	—	" (" ") " " 164062 with 1443-809, 1700-809, 132565, 164056, 164061, 164068, 164397, 164829 and 164952
1083-803	3090	Looper (right hand) Driving Lever Clamping Screw
140596-830	3090	" (" ") " " Set Screw
164063	3090	" (" ") " Shaft
164049	3090	" (" ") " " Bushing (back)
140394-805	3090	" (" ") " " " (") Cap Screw
164293	3090	" (" ") " " " (") " " Washer (fibre)
164738	3090	" (" ") " " " (front)
164066	3090	" (" ") " " Crank with 1083-803
164216	—	" (" ") " " " 164066 with 164052
1083-803	3090	" (" ") " " " Clamping Screw
164052	3092	" (" ") " " " Connection with two each 171-830 and 140159-830
171-830	3092	" (" ") " Shaft Crank Connection Cap (lower) Screw

PARTS FOR MACHINE No. 246K46

Part No.	Plate	Description
140159-830	3092	Looper (right hand) Driving Shaft Crank Connection Cap (upper) Screw
164067	3090	" (" ") " " " Key
1324-803	3090	" (" ") " " " " Screw
45057	3090	" (" ") " " " " " Washer
164053	3090	" (" ") " " " Thrust Bearing
164739	3090	" (" ") " " Oil Ring (rubber)
164740	3090	" (" ") " " " " Spacer
164068	3090	" (" ") Locking Screw Stud
1700-809	3090	" (" ") " " " Nut
164219	3090	" (" ") Position Collar with 904-830
904-830	3090	" (" ") " " Set Screw
+164954-728	—	Machine Frame
+164955	—	" " complete, Nos. 140396-805, 164077, 164954-728, 165057 and three 140395-805
164074	24914	" " Bottom Cover
164075	24914	" " " " Gasket
914-803	24914	" " " " Screw (13)
+165056-701	—	" " Bracket
+165057	—	" " " 165056-701 with 164207 and two 187-805
164207	24915	" " " Key
187-805	24915	" " " " Screw
140396-805	24915	" " " Screw (large)
164077	24915	" " " " (") Washer (fibre)
164229	24915	" " " " (") " (felt)
140395-805	24915	" " " " (small)
164717-701	3093	" " Cover (back)
50571-809	3093	" " " (") Screw (long) (2)
914-809	3093	" " " (") " (short)
164718-701	—	" " " (") 164717-701 with 1637-810 and 140228-803
164719	—	" " " (") 164718-701 with 103-819, 50101-819, 50117-819, 140185-819, 164709 to 164713, 164856, two each 1209-819, 1547-819 and 140764-819
164081	24915	Machine Frame Oil Lead
140088-805	24915	" " " " Screw
1698-809	24915	" " " " " Nut
164720	24915	" " " Plug Bracket with 447-830
164721	24915	" " " " Bracket Oil Tube
447-830	24915	" " " " " " " Set Screw
140346-830	24915	" " " " " Set Screw
164083	24915	" " " Screen
206-809	24915	" " " " Screw (3)
164608	24915	" " " Splash Guard (internal)
164605	24915	" " " " " (") Oil Pad
164606	24915	" " " " " (") " " Fastener
164609	24915	" " " " " (") complete, Nos. 164605, 164606 and 164608
164085-809	3091	" " " " Guard (top)
51023-818	3091	" " " " " (") Screw (2)

PARTS FOR MACHINE No. 246K46

Part No.	Plate	Description
164086	24915	Machine Frame Oil Tube with 164087
447-830	24915	" " " " Set Screw
164087	24915	" " " " Wick
164956	3092	" " Rotary Shaft
164957	—	" " " " 164956 with 164097, 164215 to 164217, two each 164093 and 164232
139026	3092	" " Rotary Shaft Ball Bearing
164092	3092	" " " " " " Housing
51369-803	3092	" " " " " " " Screw (3)
164093	3092	" " " " Ball Sleeve (two pieces)
164232	3092	" " " " " " Guide
164958	3092	" " " " Bushing (front)
164959	—	" " " " " (") Oil Ring (rubber)
164960	—	" " " " " (") " Ring Spacer
1036-830	3092	" " " " " (") Set Screw
164961	3092	" " " " " (intermediate)
51332-803	3092	" " " " " (") Set Screw
164096	3092	" " " " Counterbalance with 1036-830
1036-830	3092	" " " " " Set Screw
164097	3092	" " " " Key
51649-803	3092	" " " " Nut
131056	3092	" " " " " Washer
164098	3092	" " " " Oil Return and Ball Bearing Grease Retainer
164099	3092	" " " " Screw Stud
164100	3092	" " " " Thrust Bearing
164101-728	3081	" " Top Cover
164214	—	" " " " 164101-728 with 330-809, 164103 and two 164418
164102	3081	" " " " Gasket
164103	3081	" " " " Oil Lead
330-809	3081	" " " " " " Screw
51369-809	3081	" " " " Screw (3)
164231	3092	" Pulley (round and "V" Belt) with two 448-830
164071-701	3092	" " Cap
140416-819	3092	" " " Screw
448-830	3092	" " Set Screw

Catalogue		
1265	—	Needle, size 11 (151×7)
164109	3091	" Clamp
51720-803	3091	" Clamping Nut
164110	3091	" Driving Shaft with 164118
164275	—	" " " 164110 with 51720-803, 164109 and 164117
164111	3091	" " " Bushing
164112	3091	" " " " Cap
164113	3091	" " " " Oil Lead
452-830	3091	" " " " " " Hole Plug Screw
164114	3091	" " " Crank with 1083-803 and two 140596-830

PARTS FOR MACHINE No. 246K46

Part No.	Plate	Description
164115	3091	Needle Driving Shaft Crank Ball
1083-803	3091	" " " " Clamping Screw
164217	3092	" " " " Connection with 164115, two each 157-830 and 171-830
157-830	3092	" " " " " Cap (lower) Screw
171-830	3092	" " " " " " (upper) Screw
140596-830	3091	" " " " Set Screw
165058	—	" Guard
165059	—	" " Holder
1083-805	—	" " " Screw
50225-809	—	" " Screw
164117	3091	" Holder
164118	3091	" Stop Pin
164119	3092	Oil Agitator
164120-701	24915	" Cooler with two 164125
164121	24915	" " Cover
164123	24915	" " " 164121 with 164135
164122	24915	" " " Gasket
145-809	24915	" " " Screw
164124	24915	" " Gasket
164125	24915	" " Oil Pipe
164126	24915	" " " Tube with 138269 and 164128
164736	—	" " " " 164126 with 51630 and 164127
164127	24915	" " " " Coupling
51630	24915	" " " " Lock Nut
*138269	—	" " " " Sleeve
164128	—	" " " " Wick
51139-809	24915	" " Screw (long) (2)
1324-809	24915	" " " (short)
164135	24915	" Cup for filling machine
164607	3089	" Deflector
164131	24915	" Sight Gauge Background Disc
164132	24915	" " " " " Gasket
164133	24915	" " " Window
164132	24915	" " " " Gasket
164134	24915	" " " " Retainer
164132	24915	" " " " " Gasket
1485-809	24915	" " " " " Screw (2)
164136	3089	Presser Bar Bracket
164137	3091	" " Lifting Bracket with 462-830, 624-830 and 51846
51846	3091	" " " " Roller and Stud
624-830	3091	" " " " Set Screw (long)
462-830	3091	" " " " " " (short)
164723	3091	" " " Lever
164139	3091	" " " " Spring
140228-803	3093	" " " " Stop Screw
1637-810	3093	" " " " " " Nut
164962	3089	" " (swing-out)
164141	3089	" " (") Lifting Screw Stud
1700-809	3089	" " (") " " " Nut
164142	3091	" " (") Opening Lever
50060-810	3091	" " (") " " Hinge Screw

PARTS FOR MACHINE No. 246K46

Part No.	Plate	Description
140510-803	3089	Presser Bar (swing-out) Pivot Screw
164351	3089	" " (") " " Locking Plate
51362-830	3089	" " (") " " " " Screw
164143	3091	" " (upright)
164144	3091	" " (") Spring
164416	—	" " (") " (heavy)
		NOTE.—No. 164144 is supplied with machine.
164887	3084	Presser Foot Body
164146	3084	" " Chaining-off Finger
164147	3084	" " Clamping Plate
50225-809	3084	" " " " Screw
164888	3084	Presser Foot, complete, Nos. 50225-809, 164146, 164147 and 164887
164194	3091	Pressure Regulating Thumb Screw
2102	3081	Tension (heavy) Disc
164155	3081	" (") Regulating Thumb Nut
50133-803	3081	" (") Screw Stud
164156	—	" (") " " 50133-803 with 164155
164161	3081	" (") Spring
59537	3081	" (") " Bushing
164158	3081	" (") " Cover
164162	3081	Tension (heavy) complete, Nos. 59537, 164156, 164158, 164161 and two 2102 (2)
2102	3081	" (light) Disc
164155	3081	" (") Regulating Thumb Nut
50133-803	3081	" (") Screw Stud
164156	—	" (") " " 50133-803 with 164155
164157	3081	" (") Spring
59537	3081	" (") " Bushing
164158	3081	" (") " Cover
164160	3081	Tension (light) complete, Nos. 59537, 164156 to 164158 and two 2102
164285	3081	" (looper thread) Thread Guide (left)
164286	3081	" (" ") " " (right)
164159	3081	" (needle thread) Thread Guide
164418	3081	" Thread Eyelet
164091	3090	Thread (looper, right hand) Stripper and Take-up with 164555
164163	24761	" (" " ") " " " Eyelet (adjustable)
1443-809	24761	" (" " ") " " Take-up Eyelet (adjustable) Screw
164555	—	" (" " ") " " Take-up Guide Wire
187-805	3090	" (" " ") " " " Screw
17022	3090	" (" " ") " " " " Washer
164164	24761	" (" " ") Thread Eyelet (movable)
1423-809	24761	" (" " ") " " Screw
164165	24761	" (" " ") " " (stationary)
1607-809	24761	" (" " ") " " (") Nut
164166	24761	" (" " ") Tube
624-830	24761	" (" " ") " Set Screw

PARTS FOR MACHINE No. 246K46

Part No.	Plate	Description
164167-701	24761	Thread (looper) Plate with 624-830
164168	24761	" (") " Cover
164206	—	" (") " " 164168 with 164169 and 164170
164169	24761	" (") " " Hinge
164170	24761	" (") " " " Pin
164171	24761	" (") " " Spring
332-809	24761	" (") " " " Screw
896-830	24761	" (") " Screw (2)
164173	24761	" (") " Thread Bushing
50318-818	24761	" (") " " " Screw
164174	—	Thread (looper) Plate, complete, Nos. 1423-809, 1443-809, 1607-809, 50318-818, 164163 to 164167-701, 164173, 164206, two each 332-809 and 164171
164175	3090	Thread (looper) Take-up (left)
164176	3090	" (") " Plate
190-805	3090	" (") " Screw (lower)
1443-809	3090	" (") " " (upper)
164151	3089	" (needle) Controller
164963	3089	" (") " Lever
1443-809	3089	" (") " Screw (2)
164177	3089	" Eyelet (needle thread)
140239-830	3089	" " (" ") Set Screw
164870	3084	Throat Plate
164882	3084	" " Guide with 853-830
1454-805	3084	" " " Screw
1094-806	3084	" " Screw (2)

PARTS REQUIRED FOR SHORTENING LENGTH OF STITCH AT WILL OF THE OPERATOR.

(Only supplied when specified on order and at an extra charge).

Part No.	Plate	Description
164820	3094	Feed Dog Section (left)
164821	3094	" " " (right)
1100-830	3094	" " " (") Screw
164822	3094	Feed Dog, complete, Nos. 1100-830, 164820 and 164821
164733	—	Machine Frame Cover (back) 164718 with 103-819, 50101-819, 50117-819, 140185-819, 164710 to 164713, 164732, 164856, two each 1209-819, 1547-819 and 140764-819
164732	3093	Stitch Regulating Device Controlling Lever
164734	3094	Presser Foot Body
164220	3094	" " Chain Cutter Friction Plate
164221	3094	" " " " Knife
51306-805	3094	" " " " " Screw
164149	3094	" " Guide
50169-809	3094	" " " Screw
164735	3094	Presser Foot with Chain Cutter, complete, Nos. 50169-809, 50225-809, 51306-805, 164146, 164147, 164149, 164220, 164221 and 164734
164227	3094	Throat Plate
164805	3094	" " Guide with 853-830

Accessories

Part No.	Plate	Description
164203	3082	Feed Eccentric Extraction (not regularly furnished with machine)
164592	3082	Gauge (not regularly furnished with machine)
Catalogue 1265	—	Needles, six, size 11 (151×7)
120342	3082	Oiler
164198	3082	Presser Bar Lifting Chain Spring (under table)
85318	3082	Screw Driver
164196	3082	Threader (6)
—	—	Tin of Oil (1 pint)
164204	3082	Tweezers
8908	3082	Wrench
164197	3082	" (socket)
164831	3082	" for 1700

BELT GUARD (Adjustable)

(Supplied with machine)

164183	3049	Belt Guard
164199	3049	" " Bracket (back)
164200	3049	" " " (front)
51326-809	3049	" " Screw
164201	3049	Belt Guard (adjustable), complete, Nos. 164183, 164199, 164200, two each 51326-809 and wood screws 3/4" No. 7 F.H.

CHIP CHUTE

(Only supplied when specified on order at no extra charge)

168198	3049	Chip Chute with four wood screws 3/8" No. 6 F.H. Blacked

---

FOOT LIFTER PARTS

(Supplied with machine)

NOTE.—The stands recommended for machines of Class 246K include a suitable treadle. If machine is fitted on a stand or other equipment which does not include a foot lifter treadle, orders should state that No. 4885 is to be supplied and it will be furnished without extra charge.

Part No.	Plate	Description
6439	3049	Chain 36″ to 45″ with 56864 and 56865
		NOTE.—When ordering No. 6439, give length required.
4879	3049	Chain Connecting Link
56864	3049	" Hook (large)
56865	3049	" " (small)
4881	3049	Treadle
4882	3049	" Shaft
4883	—	" Spring
4884	3049	" Stand
4885	3049	Treadle, complete, Nos. 4879, 4881 to 4884 and two wood screws 1″ No. 16 F.H.

KNEE LIFTER PARTS

(Supplied with machine)

59324	3059	Chain (8″ long) with 56865
56865	3059	" Hook (small)
2763	3059	Rock Shaft
12242	3059	" " Hanger with two wood screws 1″ No. 10
143283	3059	" " Knee Arm
143284	3059	" " " " Hub with 356-803 and 140351-830
140351-830	3059	" " " " " Clamping Screw
356-803	3059	" " " " " Set Screw
143285	—	Rock Shaft Knee Arm, complete, Nos. 2767, 143283 and 143284
2767	3059	" " " Plate with 356-803
356-803	3059	" " " " Set Screw
6337	3059	" " Lifting Bracket with two 356-803
164729	3059	" " " " Hook
356-803	3059	" " " " " Set Screw
356-803	3059	" " " " Set Screw
2770	3059	" " Stop Dog with 356-803
356-803	3059	" " " " Set Screw
164727	3059	Knee Lifter, complete, Nos. 2763, 6337, 59324, 143285, 164729, two each 2770 and 12242

MACHINE BASE

(Supplied with machine)

Part No.	Plate	Description
164184	3049	Machine Base with two each wood screws 3/4" No. 8 R.H. and 1¼" No. 6 F.H.
164188	3049	Machine Cushion (large) (2)
164189	3049	" " (small) (2)
140418-805	3092	" Screw Stud (back)
657-805	3092	" " " (front)

THREAD UNWINDER No. 151031

FOR THREE SPOOLS

(Supplied with machine)

228692	24764	Spool Pin
201528-819	—	" " Nut
82538	—	" " Washer
151023	24764	Spool Rest with 858-830, three each 82538, 201528-819 and 228692
150203	24764	Spool Rest Cushion (felt)
858-830	24764	" " Hub Set Screw
151024	24764	" " Rod
1122-803	24764	" " " Set Screw
151025	24764	" " Stand with two 1122-803 and three wood screws 1" No. 12 F.H.
151026	24764	Thread Guide (lower)
50311-803	24764	" " (") Holder Set Screw
151027	24764	" " (") Support with 50311-803
151028	24764	" " (upper, hollow)
151029	24764	" " (") Holder with four 453-830
151030	24764	" " Rod
453-830	24764	" " " Set Screw
453-830	24764	" " Set Screw
151031	24764	Thread Unwinder, complete, Nos. 151023 to 151027, 151029, 151030, two 151028 and 150203

Numerical List of Parts

Part No.	Page No.	Part No.	Page No.	Part No.	Page No
103	31	1143	32	49204	31
145	37	1209	29, 31	50060	37
157	30, 37	1250	29	50073	32
171	33, 34, 37	1259	31	50101	31
187	35, 38	1264	31	50113	31
190	30, 33, 39	1324	33, 35, 37	50117	31
197	32	1389	29	50133	38
198	32	1423	38	50169	31, 40
206	35	1443	34, 38, 39	50225	37, 38
217	31	1454	30, 39	50292	32
227	31	1485	37	50311	43
330	36	1517	31	50318	31, 39
332	39	1547	31	50370	34
356	42	1607	38	50379	34
442	31	1628	29, 31	50388	30
447	32, 35, 36	1637	37	50409	31
448	36	1655	31	50420	34
452	36	1671	29, 30	50571	35
453	43	1698	35	50611	33
460	33	1700	29, 30, 34, 35, 37	51023	35
462	34, 37	1772	31	51139	37
620	32	2102	38	51306	40
624	29, 32, 37, 38	2763	42	51326	41
629	30	2767	42	51332	36
657	43	2770	42	51362	38
735	29, 33	3146	32	51369	34, 36
742	33	4879	42	51408	29
853	31, 34	4881	42	51630	37
858	43	4882	42	51649	36
896	39	4883	42	51720	36
904	35	4884	42	51846	37
914	34, 35	4885	42	56864	42
1019	34	6337	42	56865	42
1036	36	6439	42	59324	42
1057	34	8908	41	59456	33
1083	33, 34, 37	12242	42	59537	38
1094	39	17022	29, 38	82538	43
1100	29, 40	39541	33	85318	41
1122	43	45057	33, 35	120342	41

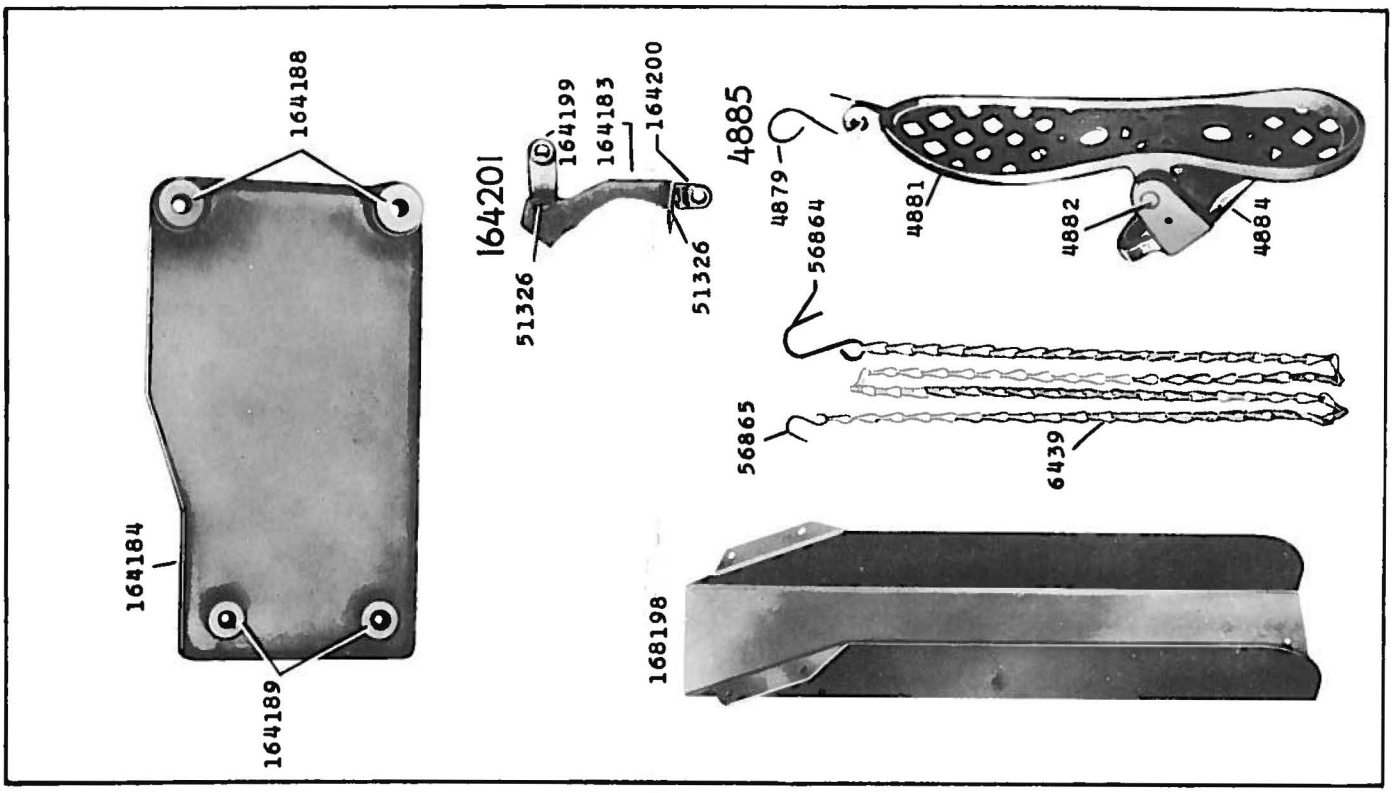
NUMERICAL LIST OF PARTS

NUMERICAL LIST OF PARTS

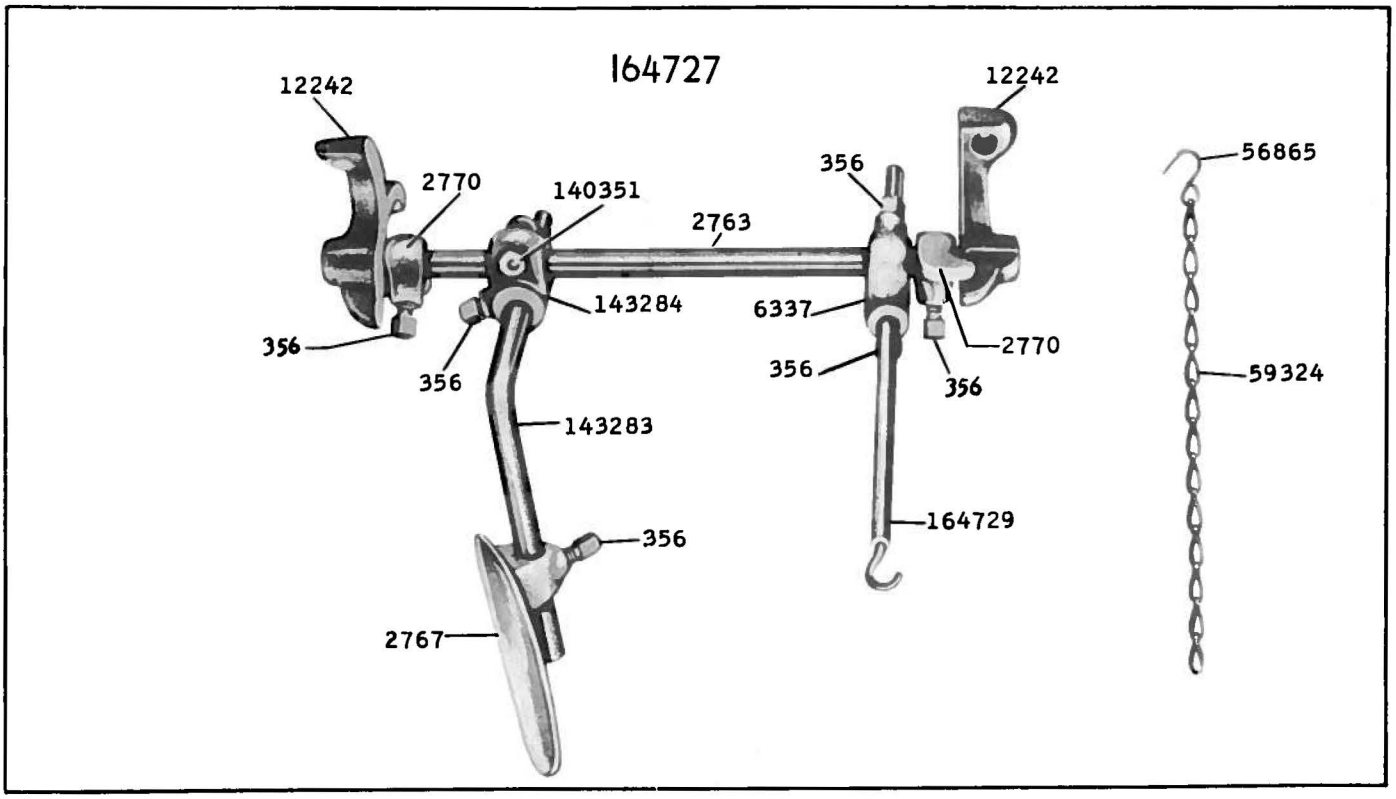
Part No.	Page No.	Part No.	Page No.	Part No.	Page No.
164127	37	164177	39	164373	32
164128	37	164180	32	164397	34
164131	37	164181	32	164401	31
164132	37	164182	32	164416	38
164133	37	164183	41	164418	38
164134	37	164184	43	164458	32
164135	37	164188	43	164462	33
164136	37	164189	43	164520	30
164137	37	164194	38	164525	33
164139	37	164196	41	164550	32
164141	37	164197	41	164555	38
164142	37	164198	41	164590	33
164143	38	164199	41	164592	41
164144	38	164200	41	164593	29
164146	38	164201	41	164594	29
164147	38	164202	34	164605	35
164149	40	164203	41	164606	35
164151	39	164204	41	164607	37
164155	38	164205	29	164608	35
164156	38	164206	39	164609	35
164157	38	164207	35	164660	33
164158	38	164210	32	164661	33
164159	38	164214	36	164664	30
164160	38	164215	33	164665	30
164161	38	164216	34	164686	29
164162	38	164217	37	164687	29
164163	38	164219	35	164688	29
164164	38	164220	40	164690	30
164165	38	164221	40	164691	30
164166	38	164227	40	164692	30
164167	39	164229	35	164693	30
164168	39	164231	36	164694	30
164169	39	164232	36	164695	30
164170	39	164269	32	164696	30
164171	39	164275	36	164697	30
164173	39	164285	38	164698	30
164174	39	164286	38	164699	30
164175	39	164293	33, 34	164700	30
164176	39	164351	38	164701	30

NUMERICAL LIST OF PARTS

3049—1/4

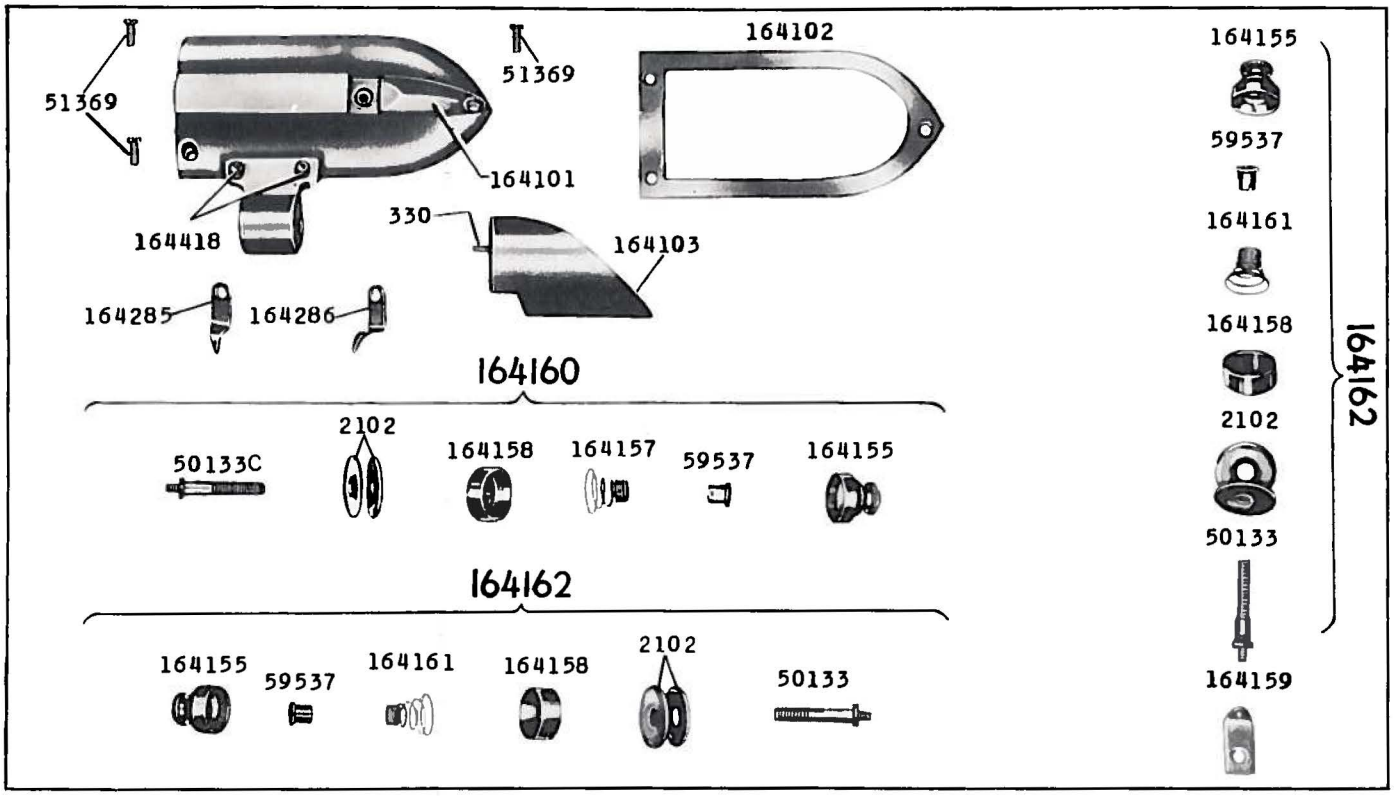


3059—1/3

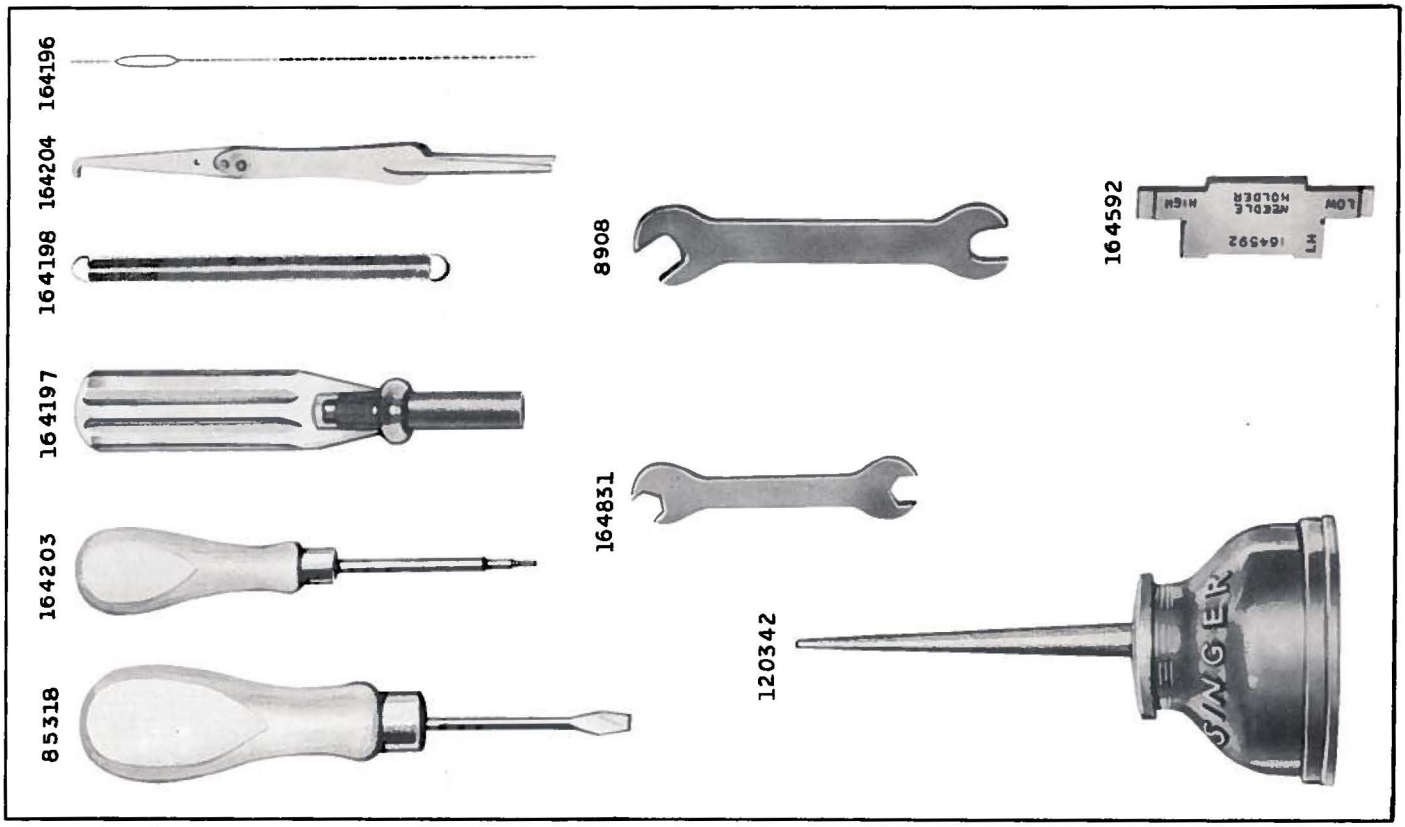


ILLUSTRATIONS

3081 - 1/3

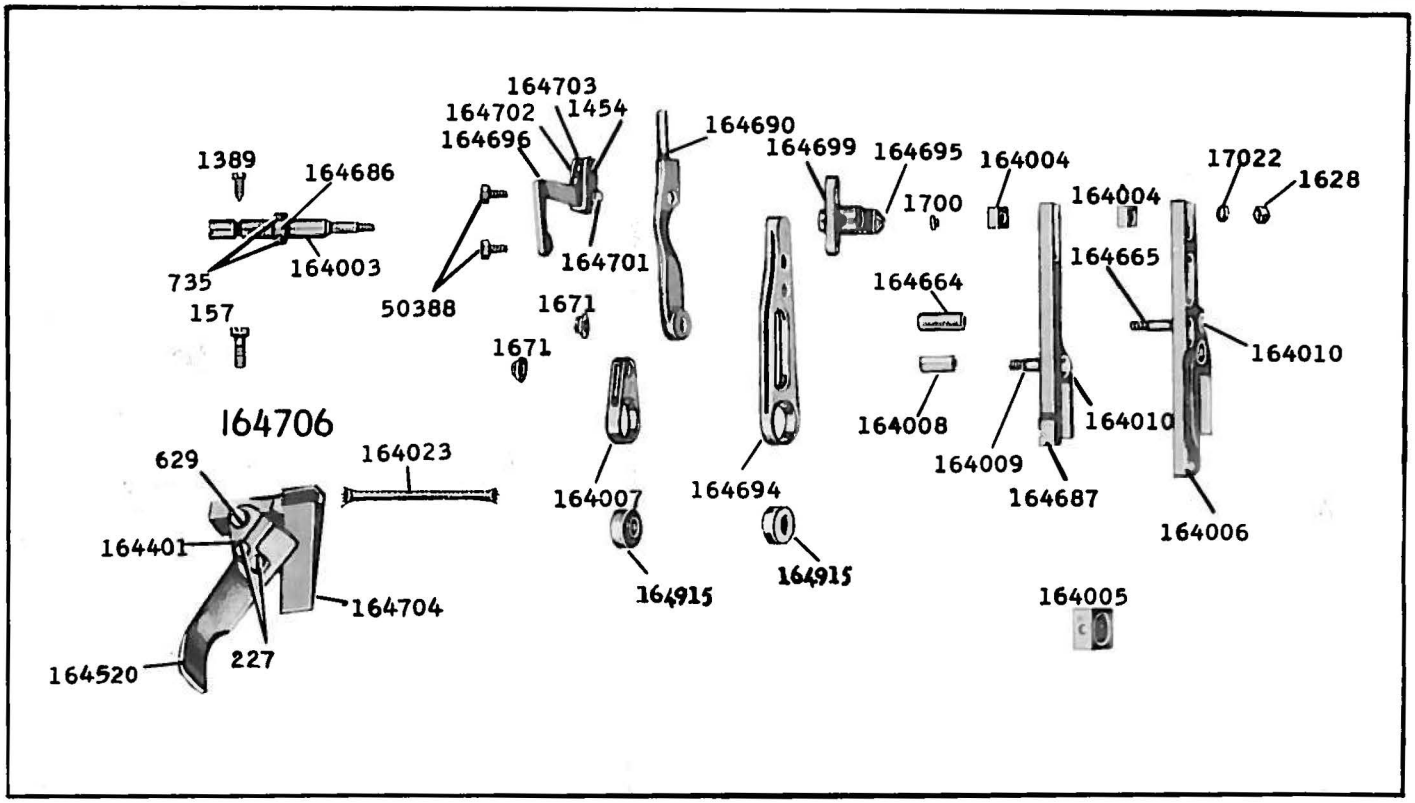


3082 - 1/2

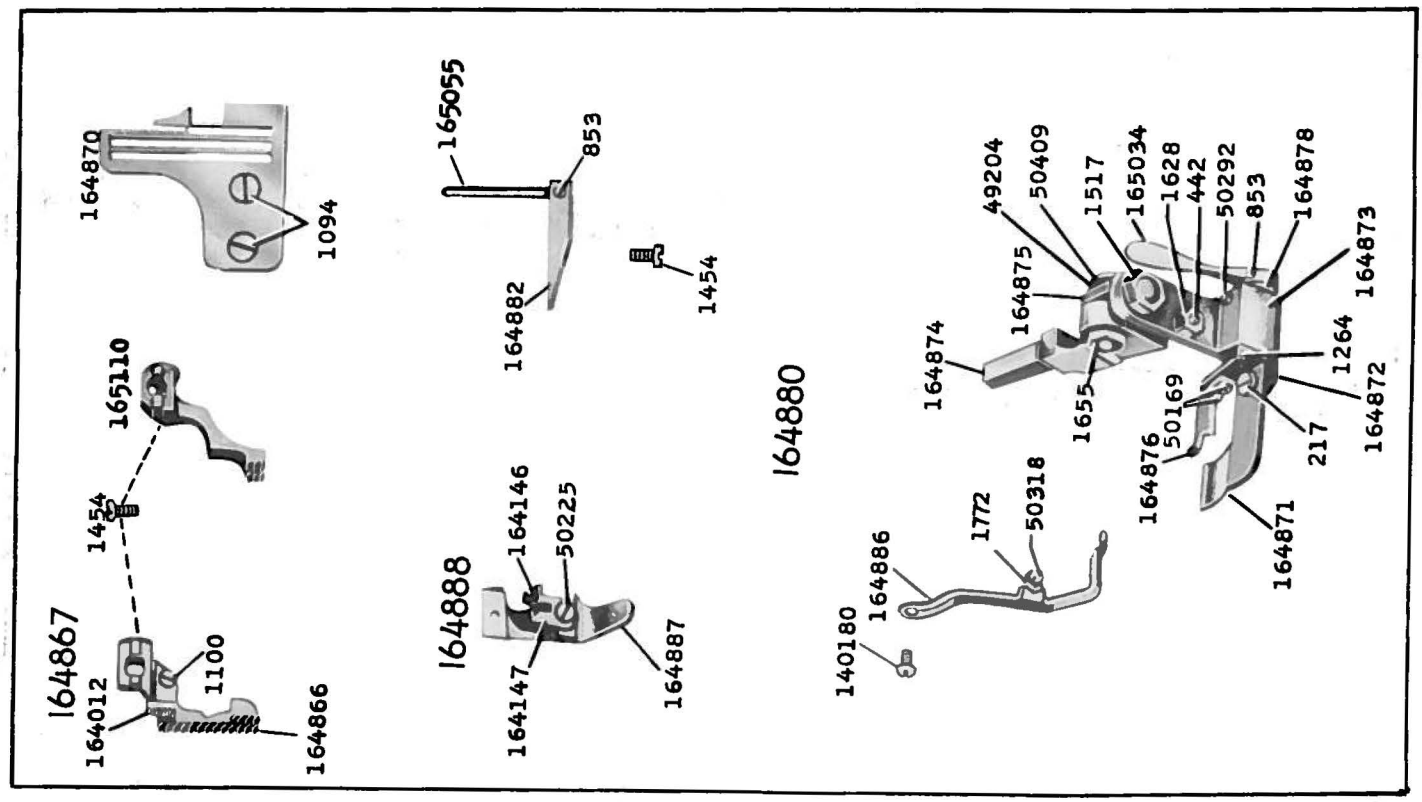


ILLUSTRATIONS

3083 - 1/3

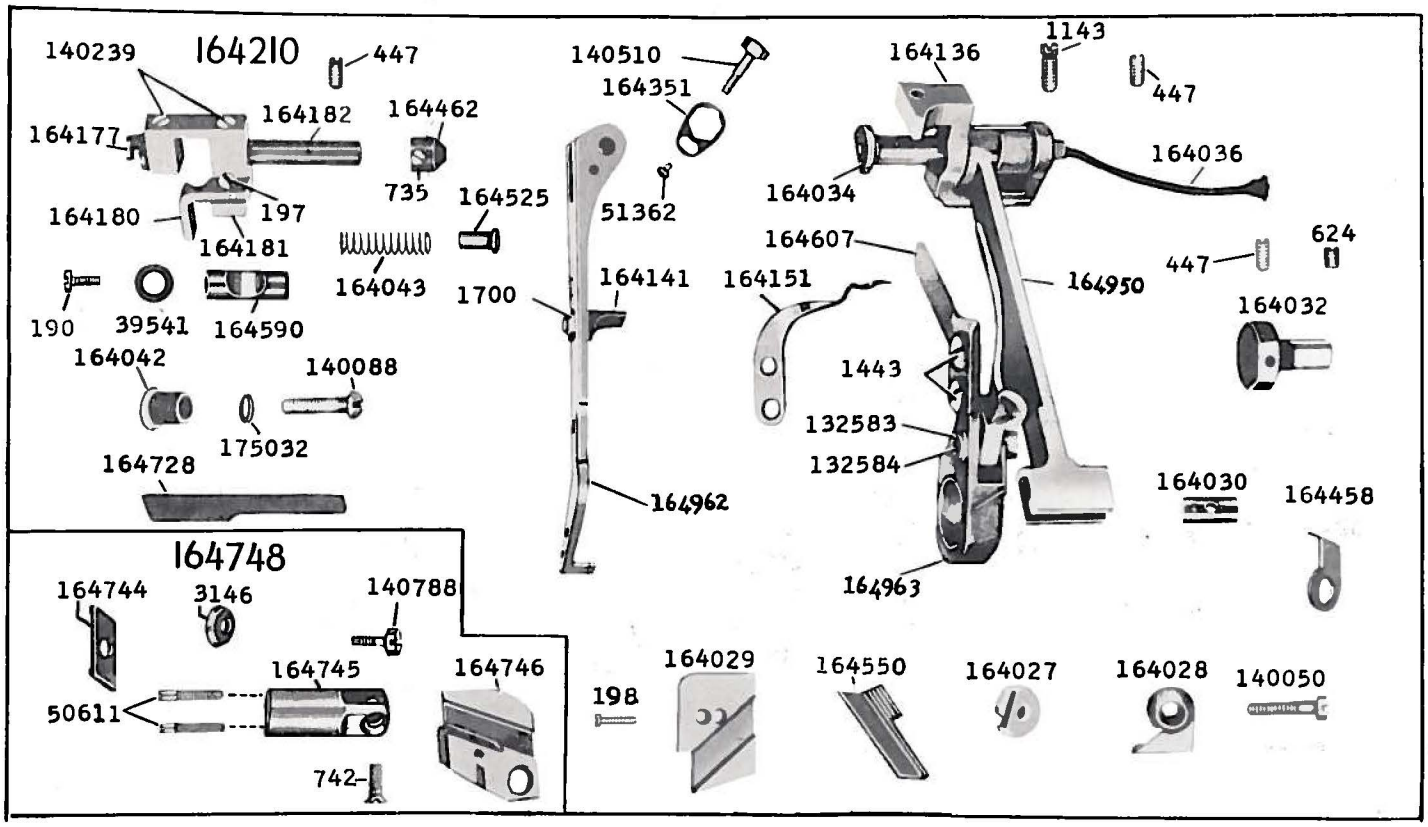


3084 - 1/2

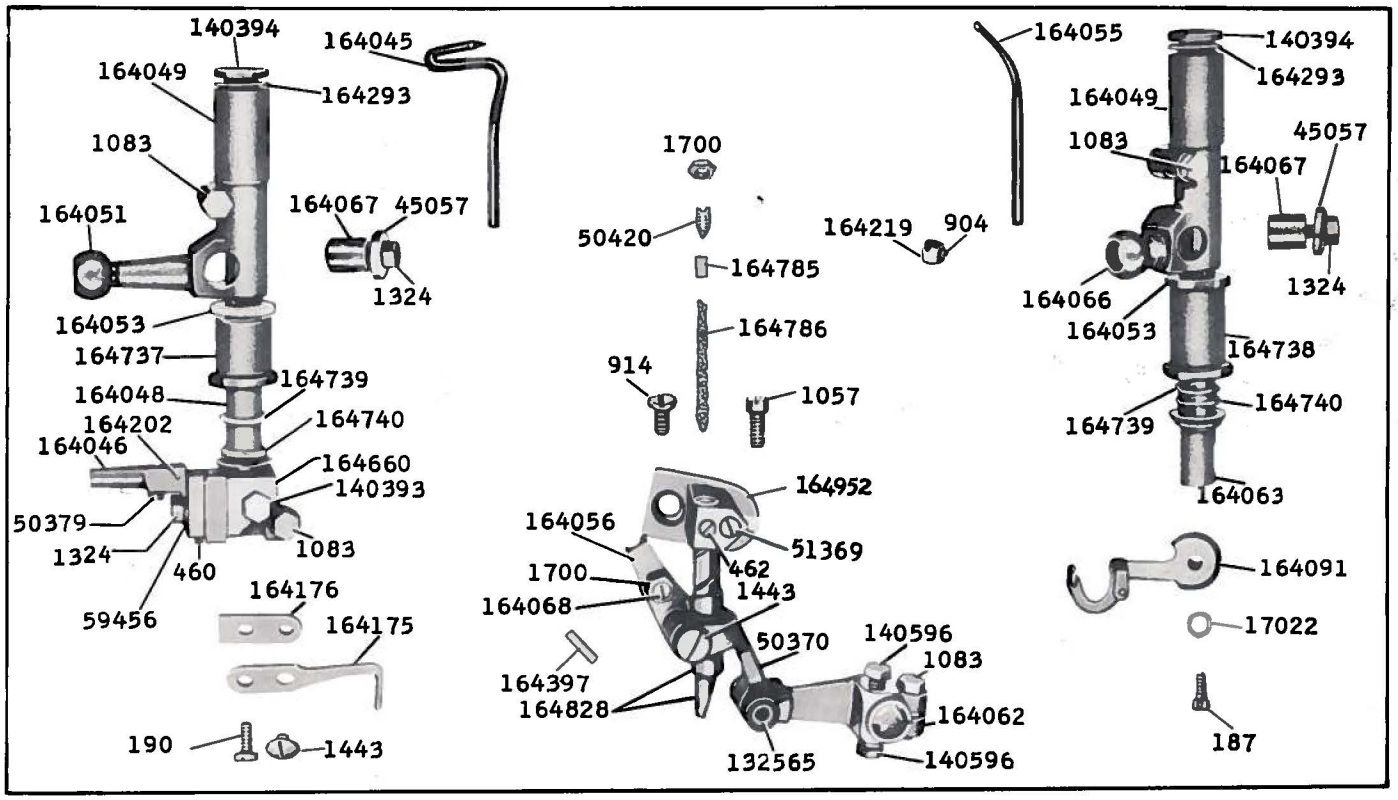


ILLUSTRATIONS

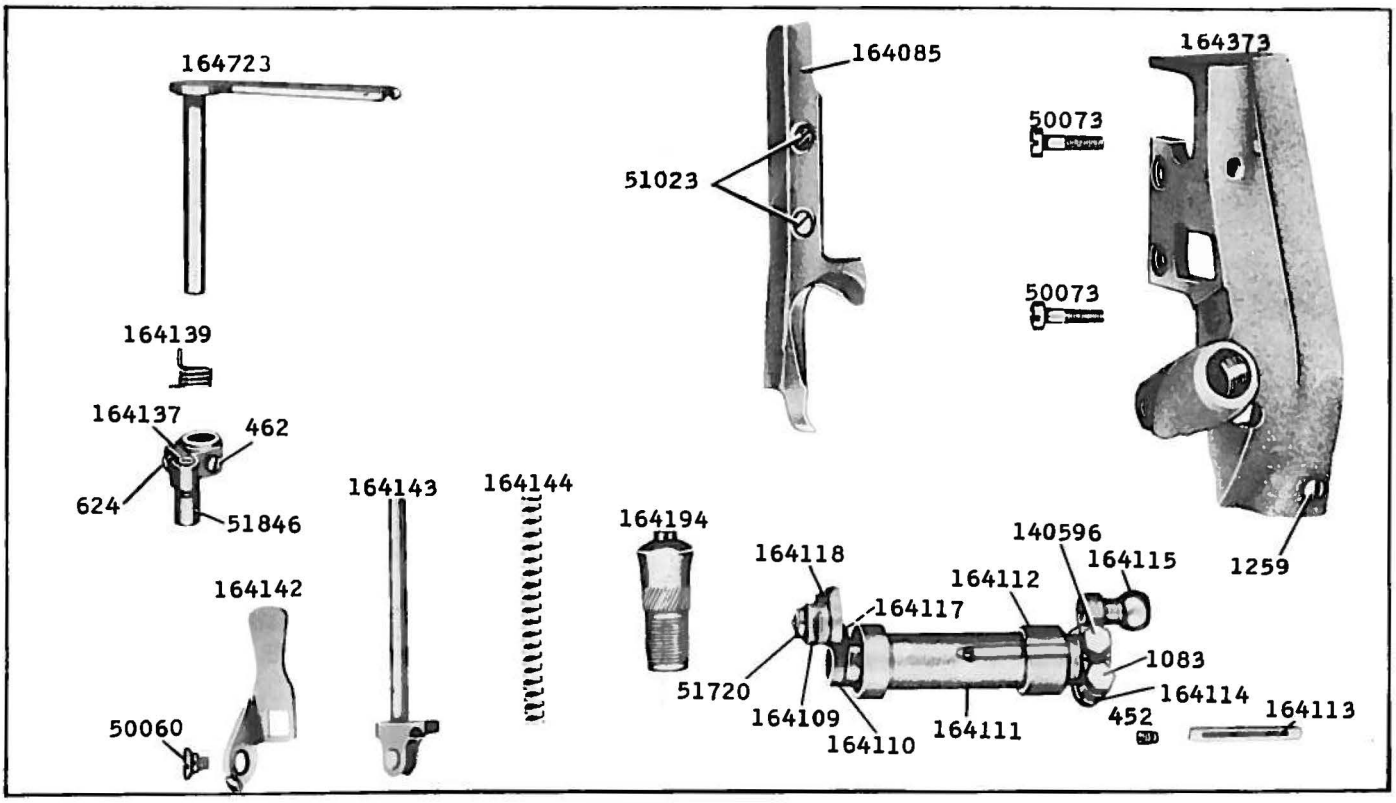
3089 - 1/2



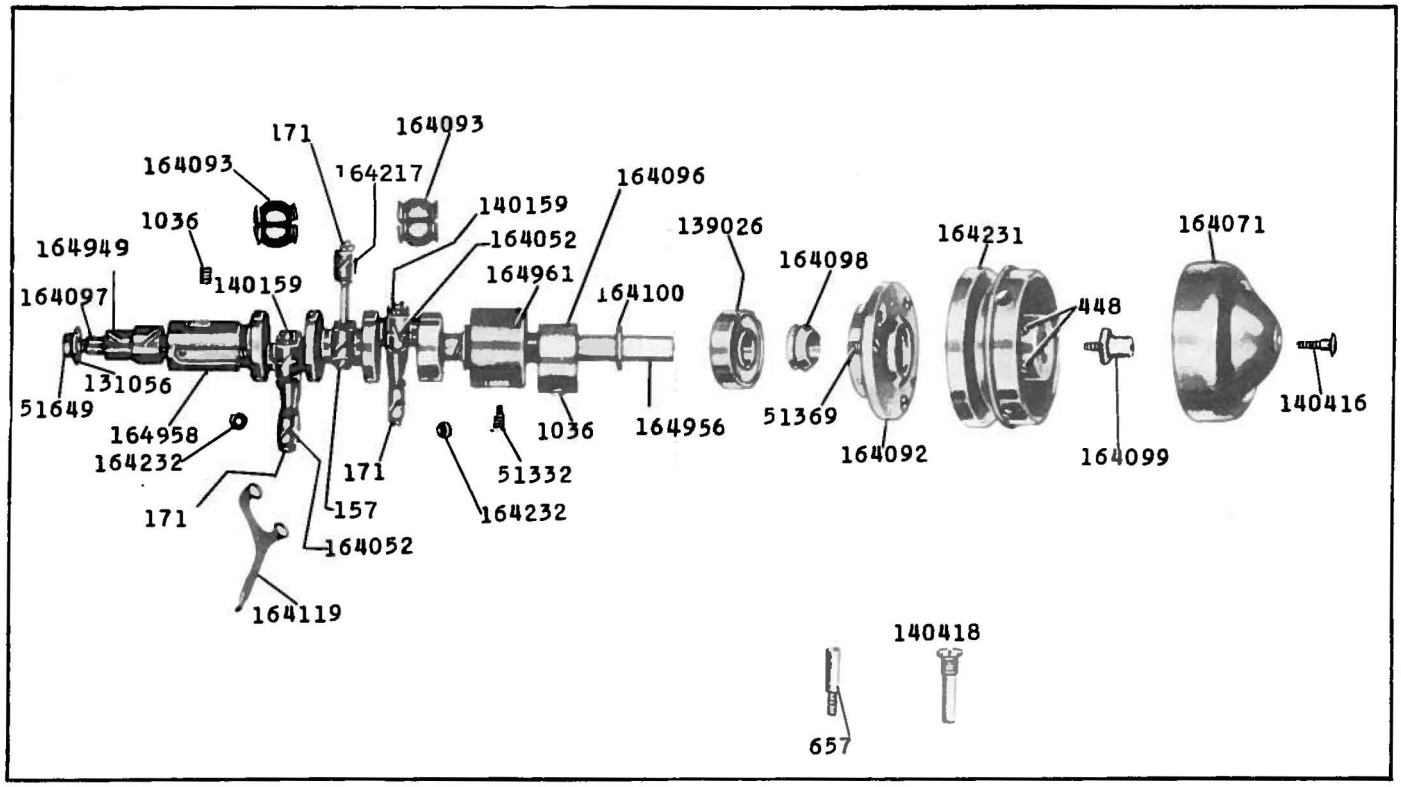
3090 - 1/2

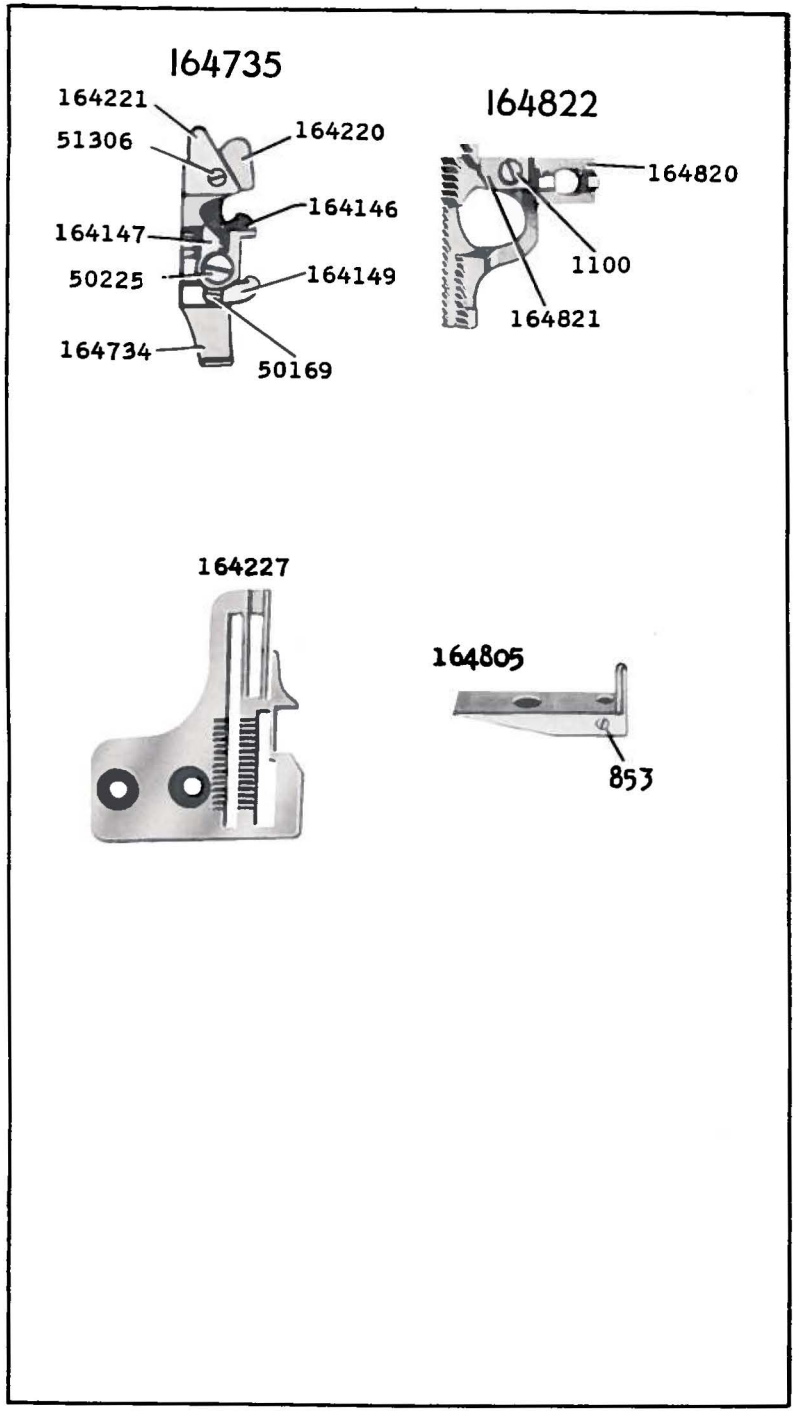


3091 - 1/2

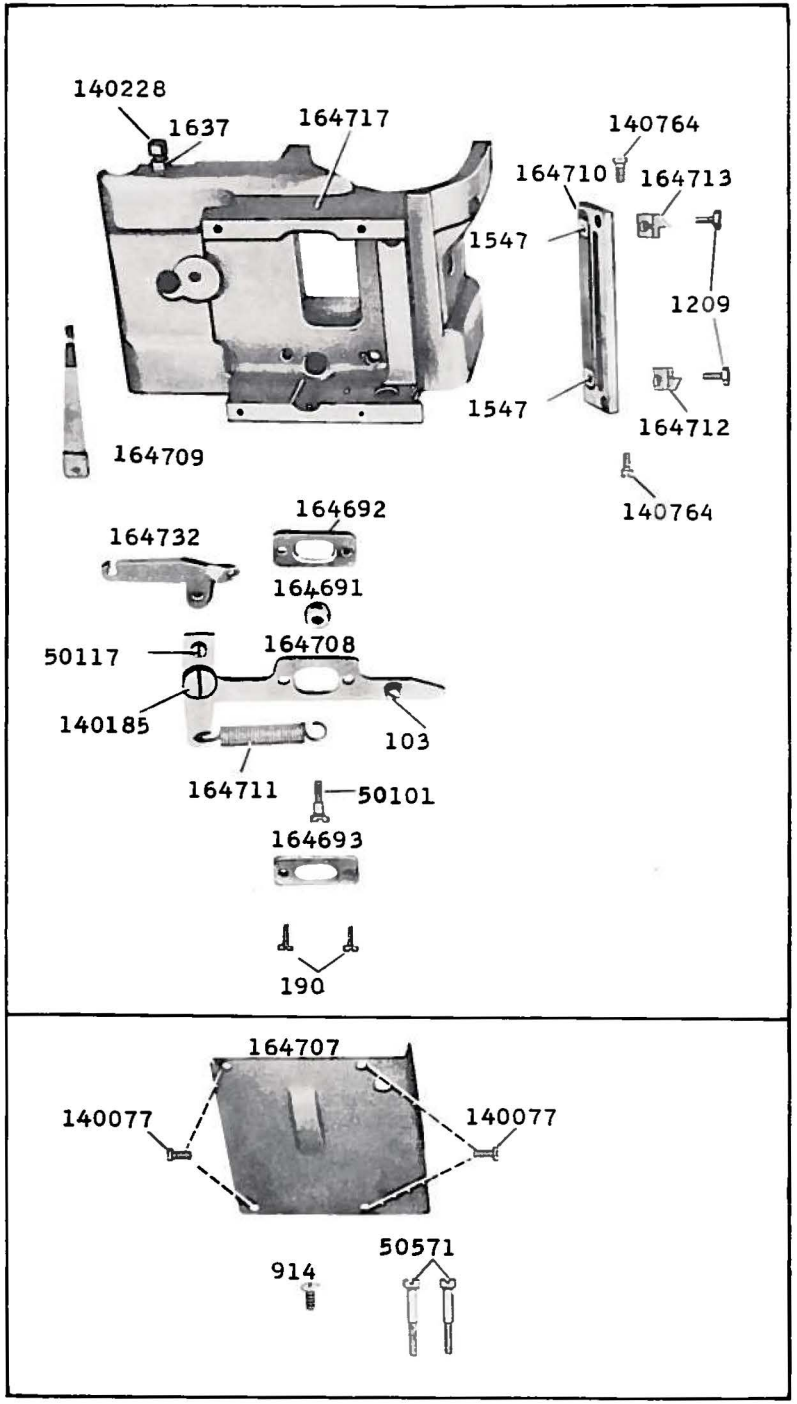


3092 - 1/3



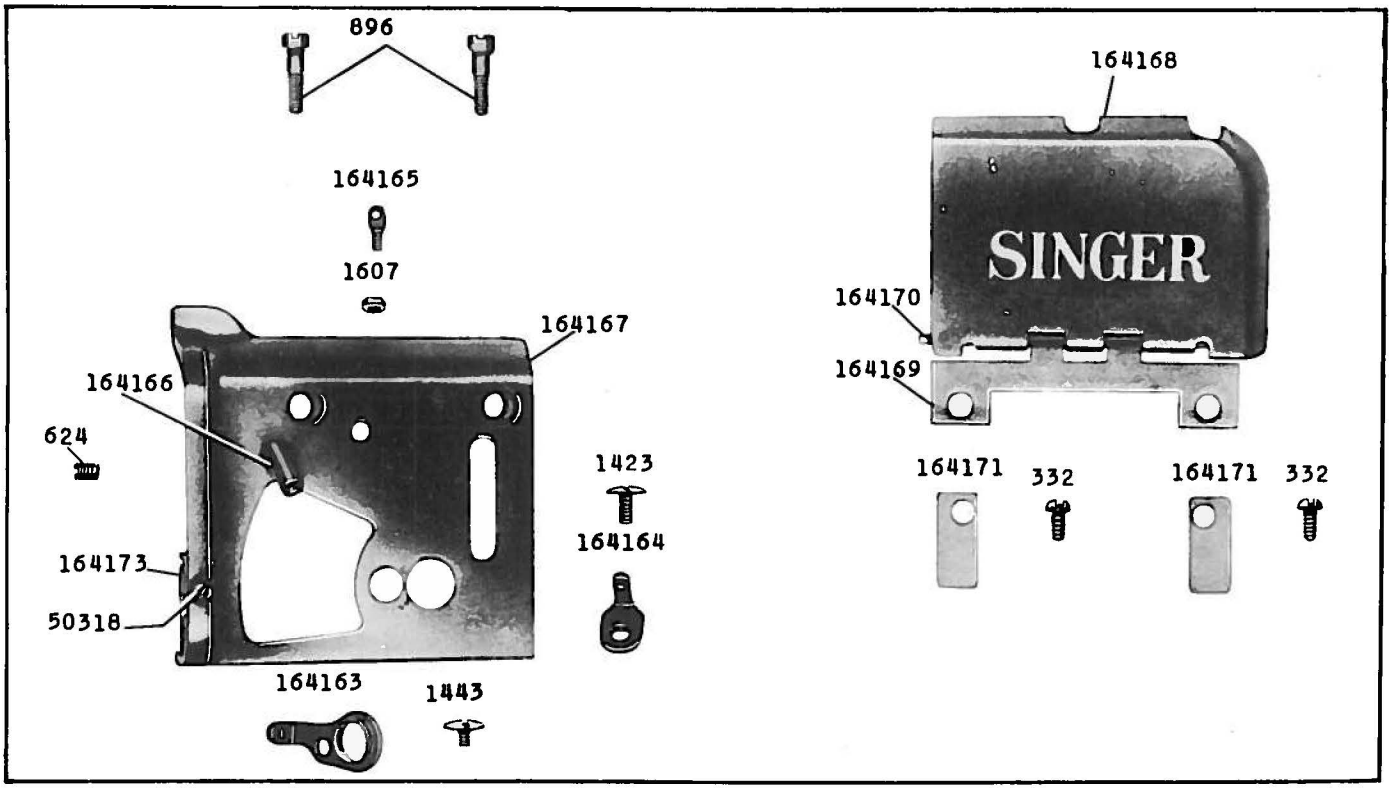


3094 - 2/3

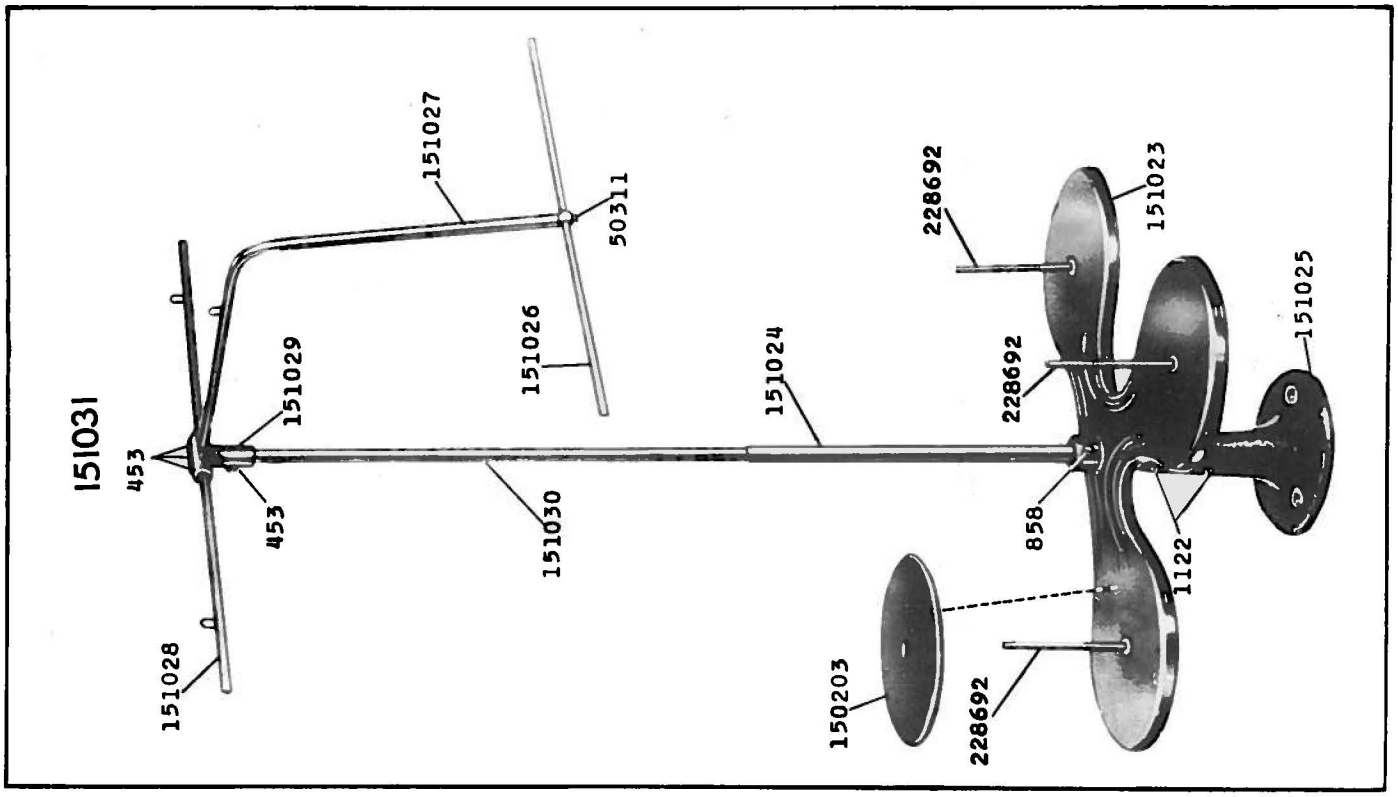


3093 - 1/3

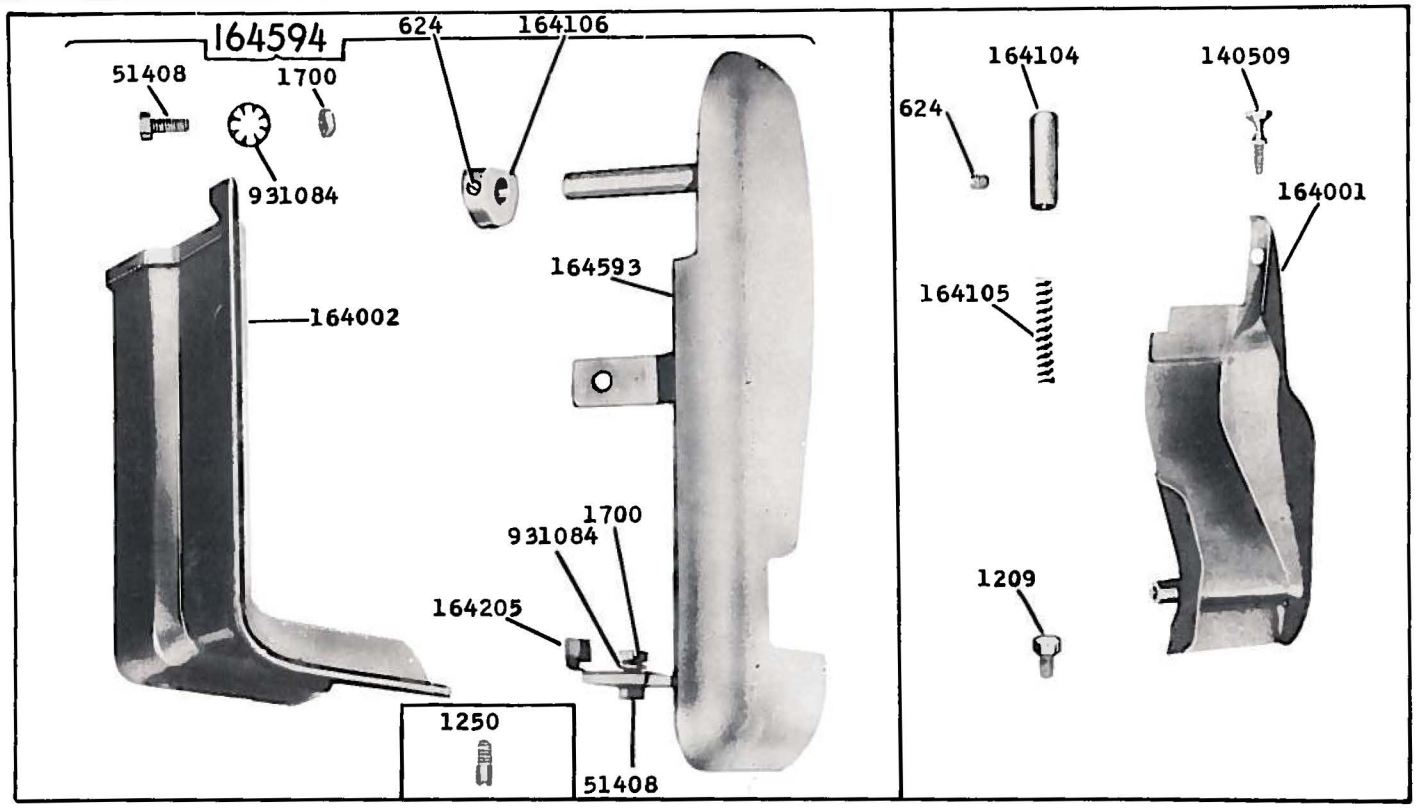
24761—2/3



24764—1/6



24855—1/2



24914 - 1/2