INSTRUCTIONS
FOR USING AND ADJUSTING
SINGER
SEWING MACHINES
300w103 and 300w203

Machine 300w203

Special attention is called to the lubricating instructions on pages 6 and 7

THE SINGER MANUFACTURING COMPANY
DESCRIPTION

Machine 300w103 has one needle and one looper and makes a single row of two-thread chain stitching.

Machine 300w203 has two needles and two loopers for simultaneously making two parallel rows of two-thread chain stitching. The needles are set abreast and the distance between them may be from 3/16 inch to 1 inch, in steps of 1/32 inch, as ordered. The standard gauges are 1/4”, 5/16”, 3/8”, 1/2” and 3/4”.

These machines are especially adapted for seaming overalls and work pants, automobile trim, stitching tarpaulins, tents, seat covers and similar work in medium and heavy fabrics.

A compound feed, consisting of needle feed and drop feed, working in combination with alternating pressers, comprising an upper feeding foot and lifting presser foot, carry the work forward in unison with the needle in the material, insuring powerful, positive and even feeding of two or more plies of material.

The maximum length of stitch is 3 to the inch. The needle bar stroke is 1-1/4 inches and the presser bar lift is 3/8 inch.

An automatic oiling system delivers the required amount of oil to all principal bearings.

SPEED

The maximum speed recommended for these machines is 4000 R.P.M., depending upon the nature of the work. For the first few days, the speed of the machines should not exceed 3500 R.P.M., after which they can be driven at their maximum speed. The top of the balance wheel turns over toward the operator.

CAUTION: Before starting the machine, it must be thoroughly oiled, as instructed on pages 6 and 7.
TO SET UP MACHINE

Assemble the iron work, legs, brackets, treadles, etc., as shown in Fig. 2.

Assemble thread unwinder as shown in Fig. 3.

Connect foot lifter treadle to foot lifter lever L5, Fig. 3A at back of machine by means of chain furnished for purpose.
Assemble oil pan D to hangers B, placing leather and steel washers as shown in Fig. 4. Attach oil jar to oil pans as shown in Fig. 2.

First set right hand hanger B as close to cut-out side as possible flush with table as shown in Fig. 4. Then place left hand hanger so that distance between centers of rubber bushing holes of right and left hangers is 17-3/16”. Place four rubber insulating bushings C in hanger holes, as shown in Fig. 5. When necessary, to level machine, use four felt pads A on bed pins, as shown in Fig. 5, then set machine on these pads, having bed pins pass through rubber bushings C.
TO OIL THE MACHINE

The machine has an efficient automatic oiling system comprising a hollow arm shaft and a hollow bed shaft which act as oil reservoirs and deliver the required amount of oil to all of the principal bearings when the machine is in operation. The oil is distributed to the various bearings by centrifugal force through small jets in the shafts so that only clean oil reaches the bearing surfaces. Oil holes are provided for hand oiling of parts in movable contact which are not oiled from the reservoirs.

CAUTION: Use "TYPE D" OIL sold by Singer Sewing Machine Company. See inside front cover for description of this oil.

THE MACHINE MUST BE OILED AS INSTRUCTED BELOW AND ON THE FOLLOWING PAGE. FAILURE TO DO THIS WILL RESULT IN DAMAGE TO THE MACHINE.

NOTE: It is not necessary to remove the work plate for the first servicing or subsequent oiling of the machine. For this purpose, merely swing out the face plate and remove bed slide plate.

USE ONLY THE PRESSURE OIL CAN NO. 228491 FURNISHED WITH THE MACHINE, AS SHOWN IN FIGS. 6 AND 8.

TO OIL ARM SHAFT

1. To fill arm shaft oil reservoir, insert spout of pressure oil can in hole D, Fig. 6 and inject 6 shots of oil into shaft.
2. To fill bed shaft oil reservoir, push spring cover E, Fig. 7 to left, insert spout of pressure oil can in hole F, Fig. 8 and inject six shots of oil into shaft. Close oil spring cover E.

NOTE: The arm shaft and bed shaft can also be oiled from right hand ends.

3. Apply oil to work plate oil holes and arm oil holes. Oil needle bar bearings and connections, needle bar rock frame bearings, looper rocker sleeve, presser lifting mechanism and looper pull-out rack.

A MACHINE IN DAILY USE MUST BE OILED AS FOLLOWS:

- Fill arm shaft oil reservoir D, Fig. 6 (approximately 6 shots of oil).
- Fill bed shaft oil reservoir F, Fig. 8 (approximately 6 shots of oil).
- Once a day Apply oil to all holes in work plate.
  - Oil needle bar bearings and connections and needle bar rock frame bearings.
  - Oil looper rocker sleeve.
  - Oil feed lifting rock shaft bearings in back of arm.
- Occasionally oil tension release mechanism and looper pull-out rack.
Pull table slide toward you and turn balance wheel over toward you until needle bar is at its highest position.

Move loopers out of sewing position, by pulling rod H, Fig. 11 out 1/4” and gear rack button G, Fig. 11 as far as it will go. This will make threading easier and prevent accidental operation of machine before loopers are returned to sewing position.
To thread loopers, pass threads through threading points in the order shown in Figs. 9 to 15. Dotted line indicates thread for left looper.

**Fig. 11. Looper Threading**

**Fig. 12. Threading Take-up for SHORT Needle Loop**

**Fig. 13. Threading Take-up for LONG Needle Loop**

**NOTE:** To change formation of stitching from a short needle loop to a long needle loop, decrease tension on needle threads and pass both looper threads over one arm of take-up wire shown in Fig. 13. Adjust tension to suit.

**Figs. 14 and 15. Threading Looper**

For threading loopers, use tweezers No. 228451, as shown in Figs. 14 and 15.
TO THREAD THE NEEDLES

To thread needles, pass thread through threading points in the order shown in Figs. 16, 17 and 18. Dotted line indicates thread for left hand needle.

Turn balance wheel over toward you until needle bar is at its highest position.
Draw about two inches of thread through eye of each needle with which to commence sewing.
TO SET THE NEEDLES

Insert the needles up into the needle clamp as far as they will go with the scarf of each needle toward the left, as shown in Fig. 19, then securely tighten the needle set screws.

NEEDLES

Depending on the nature of material to be sewn, use needles of Class and Variety 62x59 (for medium heavy work) and 62x57 (for medium light work).

Needles 62x59 are made in sizes from 20 to 25. Needles 62x57 are made in sizes 16 to 24.

The size of the needle to be used is determined by the size of the thread which must pass freely through the eye of the needle. Rough or uneven thread, or thread which passes with difficulty through the eye of the needle will interfere with the proper operation of the machine.

Orders for needles must specify the quantity required, the size number, also the class and variety numbers separated by the letter X.

The following is an example of an intelligible order:

"100 No. 22, 62x59 Needles."

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

THREAD

Either left twist or right twist thread can be used in the needles and loopers.
TO REGULATE PRESSURE ON MATERIAL

3. Move up to increase pressure. Down to decrease.
1. Loosen
2. Loosen

Always use lightest pressure possible to permit higher working speeds.

When correct feeding pressure is attained (which will feed work without noise in spring arm connection), tighten lock screw 4.

Fig. 20

Fig. 21
TO REGULATE TENSIONS

For average sewing, the tension on the looper threads should be very light.

Tension should be just enough to set the stitch properly in the material.

TO REGULATE THE LENGTH OF STITCH

The letters A to L on the stitch indicator plate J, Fig. 24 denotes the various lengths of stitches that can be made, the letter A indicating the longest stitch. The letter opposite the arrow K, Fig. 24 on the front of the arm indicates the length of stitch the machine is ready to make when the plunger L, Fig. 25 and button M, Fig. 25 engage the notches in the feed eccentrics.
The forward and backward movements of the needles and feeding foot are regulated by the knurled plunger L. The travel of the feed dog is regulated by the button M.

When changing the length of stitch, the following adjustments must be made in UNISON.

Press in plunger L and at the same time turn balance wheel over toward you until plunger L enters a notch in adjustable eccentric on arm shaft, then turn plunger clockwise to lock it in position. Now, press button M and at the same time turn balance wheel over toward you to increase length of stitch or over from you to shorten stitch, until desired letter on stitch indicator is opposite arrow K. Then release button M and TURN plunger L to right or left until it springs outwardly and releases eccentric. The machine is then ready for operation.

CAUTION: NEVER change forward and backward movements of needles and feeding foot without changing the travel of the feed dog.

The upper and under feeds are usually set to act synchronously, but this setting is subject to slight variations depending upon the nature of work being sewn.
TO REGULATE THE AMOUNT OF LIFT OF THE PRESSERS

The vibrating presser or feeding presser is provided with needle holes and moves forward in unison with the needles. The lifting presser has only an up and down motion. Remove arm cover at Q, Fig. 26. The lift of the vibrating and lifting pressers is controlled by adjustable eccentric N. Turn balance wheel until feeding presser is down, loosen two lock screws I, and two clamping screws O, hold screwdriver in notch of adjusting disc P, and turn balance wheel as indicated in Fig. 26, for required amount of lift.

TURN BALANCE WHEEL

CAUTION: When correct lift is attained, securely tighten two clamping screws O and their locking screws I. If it is desirable to have either one of the pressers lift more than the other, turn balance wheel until lifting presser is at its highest position. Loosen two clamp screws U, Fig. 27, turn lifting rock shaft crank T, Fig. 27 up or down until required lift of each presser is attained.

CAUTION: Securely tighten clamp screws U before operating machine with power. Limit lift of pressers to minimum required for the work, as this permits higher speeds.
TO TIME PRESSER FEED LIFTING ECCENTRIC

The presser feed lifting eccentric unit is not spotted. To adjust, loosen two holding screws R, Fig. 27 by not more than one half turn with screwdriver. (This will keep the part correctly aligned sidewise as the holding screws engage a shallow groove in the feed driving flange S). Move feed lifting eccentric so that vibrating presser will seat on work at about same time needle enters work. This condition will vary slightly depending on type of work being done.

CAUTION: Securely tighten holding screws R after adjustment is made.

Fig. 27. To Time Presser Feed Lifting Eccentric

NOTE: The instructions on the following pages are for adjusters and mechanics only.
TO SET FEED BAR AT THE CORRECT HEIGHT

See that feed lift crank timing screw V, Fig. 28 engages shaft spot correctly and that slot of feed lift link clamp W is properly aligned with rock shaft timing flat. If an adjustment is required, loosen clamp screw X, move feed lift link to correct position, see that it is not binding side-wise, then securely tighten clamp screw X.

Fig. 28. Adjustment for Setting Feed Bar at Correct Height

Fig. 29. Feed Lift Crank and Link Assembly
TO SET FEED DOG SIDewise IN RELATION TO NEEDLES

To adjust feed dog sidewise so that needles will enter center of needle holes, loosen thrust collar screws in right collar A2, Fig. 30 and in left collar Y and move feed rocker and feed bar assembly to required position. (This adjustment permits a sidewise movement of feed dog of not more than 1/64 inch.) When feed dog is correctly set, move thrust collars into proper position and tighten screws. See that feed driving strap D2 and feed lifting link F2 are not binding.

For more than 1/64 inch sidewise movement of feed dog, loosen screws Y, A2, B2, and E2, driving strap D2 and feed lifting link F2, and move feed rocker and feed bar assembly to required position and retighten. Be sure strap D2 and link F2 are not binding.
TO SET FEED DOG FORWARD AND BACKWARD IN RELATION TO SLOTS IN THROAT PLATE

To adjust feed dog in direction of feed after feed dog has been positioned sidewise in relation to needles, set feed eccentric C2, Fig. 32 for desired stitch with respect to throat plate slots. Loosen set screws B2 and two clamp screws E2 in feed driving rock shaft crank and move feed rocker Z to required position, then securely tighten two clamp screws E2 and lock them with set screws B2.

Fig. 32. Adjustments for Setting Feed Dog Forward and Backward in Relation to Slots in Throat Plate

Fig. 33. Feed Driving Rock Shaft Crank and Feed Rocker Assembly
TO SET FEED DOG AT CORRECT HEIGHT

When feed dog is at its highest position on feed stroke, approximately full depth of teeth should show above throat plate. To raise or lower feed dog, loosen jack screw H2, Fig. 34 and slightly loosen feed dog clamping screw G2 and nut L5, then set feed dog at correct height, turning jack screw H2 counterclockwise and tapping feed dog down to lower it or turning jack screw H2 clockwise and tapping feed dog up to raise it. When feed dog is correctly set, securely tighten clamping screw G2 and nut L5.
TO TIME FEED LIFT ECCENTRIC

The feed lifting eccentric is not spotted. To adjust, insert screwdriver in hole in feed lift strap, slightly loosen screws at J2, Fig. 36 and move feed lift eccentric forward to make feed dog rise earlier or backward for later. When feed dog is at its highest position, the top of teeth should be parallel with upper surface of throat plate and project full depth of teeth above throat plate, then securely tighten screws at J2.

Fig. 36. Adjustment for Timing Feed Lift Eccentric

Fig. 37. Feed Lift Eccentric
TO POSITION NEEDLE BAR FORWARD AND BACKWARD IN RELATION TO FEED DOG

Insert 62x57 needles (or 62x59 for heavy seams) in needle clamp as far as they will go, then securely tighten screws. See that needles are correctly aligned with needle holes in vibrating presser and feed dog. Set feed eccentrics L and M, Fig. 38 to desired stitch length. Press needle bar rock frame L2, against drive arm before loosening screws K2, as shown in Fig. 39. Continue holding needle bar rock frame while positioning needles in needle holes of previously positioned feed dog.

CAUTION: Before releasing pressure on needle bar rock frame against drive arm, securely tighten screws K2.
TO POSITION LOOPERS SIDEWISE IN RELATION TO NEEDLES USING GAUGE 268280

Remove looper from its holder and insert gauge M2 in holder exactly in the position shown in Fig. 40, having flat side on upper end of gauge pin at right and sheet metal arm pointing toward you, then fasten gauge in this position. Loosen screw N2 and move looper holder sidewise until flat side on gauge pin just touches needle, then tighten screw N2. Remove gauge and replace looper in holder.

TO SET LOOPERS AT CORRECT HEIGHT USING GAUGE 268280

Loosen looper set screws and use thickness of sheet metal arm M2 of gauge to determine correct distance between looper shank and top face of looper holder, as shown at O2, then tighten looper set screws.
The following instructions, prepared by the Bridgeport Division of Research, supersede all previous instructions covering these important adjustments:

1. Set machine to desired stitch length.

2. Loosen Looper Carrier Crank Clamping Nut (201524B) sufficiently to be able to tap the Looper Carrier from position.

3. Set looper timing mark (L.T.) on machine pulley opposite the arrow on the front of the arm.

4. Tap looper carrier until looper points are at the center of the needles.

5. Turn machine pulley until letter "G" is opposite the arrow on the front of the arm. At this position the looper points should again be at the center of the needles. If they are not, adjust the timing of the looper crank by adjusting the two looper timing screws -- until the points of the loopers are at the center of the needles at both the above described positions of the machine pulley (L.T." opposite arrow and "G" opposite arrow). When this position is obtained, securely tighten the Looper Carrier Crank Clamping Nut. The loopers will be timed and positioned correctly.
TO POSITION LOOPERS FORWARD AND BACKWARD
IN RELATION TO NEEDLES USING GAUGE 268280

With needle bar at its lowest point, place gauge M2 on top of needle bar connecting stud, as shown at Q2 in Fig. 42, and turn top of balance wheel over toward you until top of sheet metal arm of gauge touches needle bar rocker at P2. Hold balance wheel in this position and at same time, loosen looper carrier clamping nut S2, Fig. 43 and move looper carrier until point of looper is at center line of its needle, then securely tighten looper carrier clamping nut S2.
TO SET SPREADER SIDEWISE IN RELATION TO LOOPERS

When loopers are passing spreader points on their forward stroke, spreader T2, Fig. 43 must clear loopers by a double thickness of ordinary paper at U2. If spreader is too far away or too close to loopers, loosen two screws R2 in spreader holder and move spreader and holder sidewise in required direction. Be careful not to tip spreader up or down when moving it sidewise, as this will change loop casting-off position. When spreader is correctly set, tighten screws R2.
TO SET SPREADER FORWARD OR BACKWARD IN RELATION TO NEEDLES

To check position of spreader in direction of feed, turn balance wheel over toward you until needle bar is on its downward stroke and points of needles have descended to same level as top of looper blade, as shown in Fig. 44. When needles are in this position, distance between needles and spreader points should be approximately 1/16 inch, as shown in Fig. 44, slightly more for longer stitches. To make this adjustment, loosen screw W2, Fig. 44 and move spreader X2 in required direction, then firmly tighten screw W2.

Fig. 44. Spreader Set Forward and Backward in Correct Relation to Needles and Loopers

The spreader X2 should be adjusted horizontally so that when it moves sidewise, its fingers will clear the loopers and feed dog. To make this adjustment, loosen two screws V2, Fig. 44 and tilt spreader X2 up or down to the correct position, then securely tighten screws V2.

TO SET SPREADER POINTS AT CORRECT HEIGHT IN RELATION TO LOOPERS

Loosen two screws V2, Fig. 45, tilt spreader holder so that points of spreader are exactly opposite top of thread groove at side of loopers while passing on forward stroke of loopers. Tighten screws V2.
TO CHANGE AMOUNT OF SIDEWISE MOVEMENT OF SPREADER

1. LOosen 4 Screws in Eccentric B3

2. Move Eccentric B3
   - More Throw
   - Less Throw

3. Tighten 4 Screws

Fig. 46. Showing Spreader Driving Eccentric Screws

Loosen four screws in spreader driving eccentric B3, Fig. 46 and move eccentric to left to increase sidewise movement of spreader or to right to decrease it, then tighten four screws. For average sewing requirements, distance between left side of ball strap Z2, Fig. 47 and right side of rock shaft Y2 should be 1/4 inch when ball stud A3 is in horizontal position.

Fig. 47. Sidewise Adjustment of Spreader

TO REMOVE SPREADER SHAFT

1. Loosen Screws E3
2. Remove Bracket with Shaft C3 and Drive Pin D3

Fig. 48. Spreader Shaft and Bracket
TO REMOVE LOOPER CARRIER ASSEMBLY

Loosen screws M3, Fig. 49 in rack gear, remove gear and thrust plate L3. Loosen screws in right hand looper rocker bushing G3 and pull out left hand looper rocker bushing K3 and shaft, holding latch pin F3 out of engagement while removing bushing K3. The looper rocker H3, and driving member can then be removed.

Fig. 50. Looper Carrier Assembly
TO REMOVE ALTERNATING PRESSER MECHANISM

Release tension on dash pot Y3, Fig. 51. Remove leather connection W3 between dash pot plunger X3 and spring arm T3. Loosen two clamp screws V3, thrust collar screw U3, and crank screws O3. Remove lifting rock shaft crank N3 with its shaft and links as one unit from head end of machine.

Loosen two screws S3 and remove lifting lever hinge stud Q3. Remove lifting lever R3 and lifting presser bar lifting crank P3. Loosen lifting presser bar guide shaft holding screws Z3 and B4, Fig. 52. Push shaft A4 down and out of lower bearing.
TO REMOVE PRESSER LIFTING MECHANISM

Remove foot lifter lever H4, Fig. 53. Loosen spot screw D4 and clamp screw C4 of foot lifter arm. Then remove foot lifter crank G4. To remove presser bar spring arm fulcrum E4, loosen two presser bar spring arm fulcrum holding screws F4.

CAUTION: When reassembling presser bar spring arm fulcrum, make certain that holding screws F4 seat correctly on the flat part of the fulcrum shank to position fulcrum accurately.

Spot screw D4 is used for clearance adjustment in foot lifter mechanism. Turn clockwise to reduce lost motion when lifting or counterclockwise to increase. Then tighten clamp screw C4 securely.
TO SET NEEDLE THREAD TAKE-UP

The needle thread take-up L₄, Fig. 54 is usually set with lower end of take-up 1/2 inch below bottom of its holder.

Depending on kind of material, length of stitch, etc., it is necessary to move needle thread take-up L₄ upward for a larger needle loop and more pulling action in stitch formation on the heavier grades of materials. Move the take-up L₄ downward for shorter stitches and finer threads.

TO ADJUST LOOP SETTING EYELET

The loop setting eyelet K₄, Fig. 54 controls loop forming and setting action. For average kind of material and sewing condition it is advisable to have the lower or thread loop controlling edge approximately 1/8" above top of needle bar rock frame J₄, as shown in Fig. 54. Slightly reposition loop setting eyelet K₄ upward for heavier grades of work and downward from above given position for lighter work and shorter stitches—the stitch setting and thread pulling action should take place on upward stroke of needle bar.
TO ADJUST AUTOMATIC THREAD NIPPER

The needle thread nipper permits setting a tight stitch with relatively light tension on needle threads. Nip threads just before needle loops slide off loopers on downward stroke of needles. The thread nipper eccentric is not spotted and permits timing on main shaft to suit work. Loosen screws Q4, Fig. 55. Rotate eccentric to correct position, then lock screws securely Q4.

To increase duration of nipping or clamping action of automatic thread nipper on thread, loosen lock screw N4, Fig. 56 and turn collar M4 counterclockwise, or turn it clockwise to reduce holding time, then securely tighten lock screw N4 to prevent collar M4 turning.

If more or less clamping pressure is required on thread during nipping action, turn two nuts P4, Fig. 56 inwardly on center pin Q4 of nipper for more pressure, or outwardly for less. Lock outer nut against inner nut to retain adjustment.

For average sewing conditions, the nipper should act as follows: Start nipping needle threads when stitch indicating arrow on machine arm is in line with letter "G" on balance wheel. Release needle threads when indicating arrow is in line with letter "E" on balance wheel. Very little or no nipping action is required for light work. When nipper is not required, omit threading of nipper eyelets.
TO ADJUST NEEDLE THREAD TENSION RELEASER

1. LOOSEN SCREW
2. MOVE PLATE S4
3. TIGHTEN

FOR LATER RELEASE
EARLIER

OR

2. MOVE BUTTON R4
EARLIER RELEASE
LATER

Fig. 57. Adjustments on Needle Thread Tension Releaser

The function of tension releaser is to release tension on needle threads when presser feet are raised. If tension releaser does not release threads when presser feet are raised, or if tension partially released when presser feet are down, move button R4, Fig. 57 in or out on its holding stem to open tension more or less, or if necessary, move tension releaser plate S4 sidewise to release tension at correct time.

TO ADJUST LOOPER THREAD TAKE-UP

The looper thread take-up T4, Fig. 58 can be raised or lowered to take up more or less thread, as required, after loosening the screw U4 which holds it in position.

Fig. 58. Adjustment of Looper Thread Take-up
TO REMOVE ARM SHAFT

Remove back cover from machine. Loosen two screws in balance wheel V4, Fig. 59, remove balance wheel and bearing ring W4. Loosen screw in oil sling B5, two screws in needle vibrating eccentric A5, two screws in presser lifting eccentric Z4, collar Y4 and screws X4 in npper drive eccentric. Remove check screw C5 and loosen two screws D5 and E5 in needle bar drive crank F5, Fig. 60, (these screws are accessible through hole in casting), slide belt off bed shaft pulley and remove it through pulley bearing hole, then remove arm shaft from pulley end of machine.

Fig. 59. To Remove Arm Shaft

Fig. 60. Needle Bar Drive Crank

Fig. 61. Arm Shaft
TO REMOVE BED SHAFT

Loosen screws in spreader drive eccentric B3, Fig. 62, looper thread take-up drive eccentric J5, feed drive eccentric H5, and looper rocker drive crank G5, then remove bed shaft from pulley end of machine, leaving pulley on shaft for easier handling.
TO TIME ARM SHAFT AND BED SHAFT AND REPLACE MOULDED BELT

After reassembling mechanism on arm and bed shafts, replace belt on arm shaft pulley and turn arm shaft until needle bar is at its highest position, then turn bed shaft until arrow K5, Fig. 64 on counterweight of bed shaft pulley points straight upward toward arm shaft. Now, without disturbing either arm shaft or bed shaft, slip belt over bed shaft pulley, making certain that rubber teeth properly engage pulley notches. Replace bearing ring W4, Fig. 65 and tighten ring screws, then replace balance wheel, forcing it into bearing ring, and tighten balance wheel set screws.

NEEDLE THREAD OILER

The machine is equipped with a needle thread oiler for extra heavy work or gummy material. The best results will be obtained by using "TYPE E STAINLESS THREAD LUBRICANT" sold only by Singer Sewing Machine Company.