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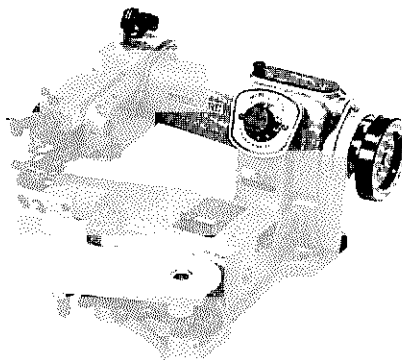
MOVABLE CYLINDER ARM  
CHAINSTITCH BLINDSTITCH SEWING MACHINE

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## **BS-1020 SERIES**

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<INSTRUCTION MANUAL>



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**NARA SEWING MACHINE INDUSTRIAL CO., LTD.**

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TOKYO JAPAN

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# OPERATING INSTRUCTION

## 1. Unpacking Machine

Open packing box by carefully removing its cover so as not to damage the machine or those of its parts which project from the top, such as the tension parts.

Small accessory parts are packed separately in individual packages. Do not discard any packing materials without prior scrutiny as to contents.

Clean from machine all greases, dirt or dust. Pay particular attention to area around the looper mechanism and looper.

## 2. Setting-up Machine

Assemble knee lifter lever to machine and place on sewing table so that lever is free of front edge of the table. Line up belt groove in belt pulley of handwheel with belt groove of drive mechanism (motor or clutch).

Mark two screw holes for fastening machine to sewing table and place felt pad under machine bed before machine is tightened down.

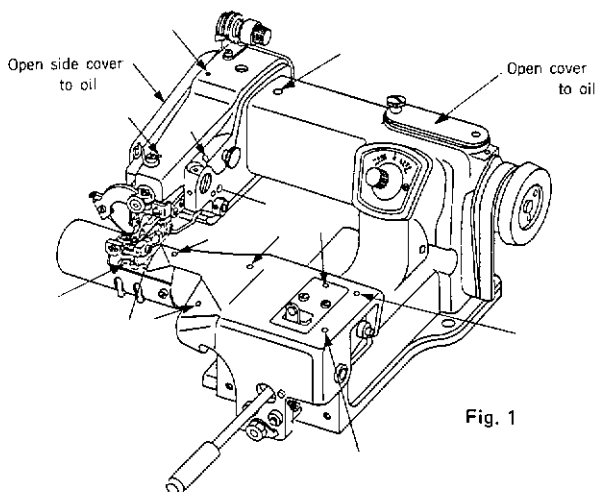
## 3. Handwheel Rotation and Speed

Turn handwheel only in direction away from operator for clockwise rotation. Be sure motor drive is wired up to obtain the same clockwise rotation. The recommended operating speed of a brand new machine is 2,000 stitches per minute. After a breaking-in period of several weeks and after the operator has become skilled in the operation of the machine, the speed can be increased up to 3,000 stitches per minute.

#### 4. Oiling and Maintenance (Fig. 1)

It is important not to operate the machine before oil of good quality has been dropped at all points shown on the oiling charts Fig. 1. When breaking-in a new machine, oiling should be done sparingly several times a day. Thereafter, one oiling daily will be sufficient. After oiling, wipe machine carefully to avoid soiling of the material.

Do not operate machine without material under the presser foot unless the knee lever is depressed. This will prevent damage to the needle and the feed dog as well as the feed plattens.



#### 5. Adjusting Knee Lifter (Fig. 2)

To adjust knee lifter ❶, loosen lift arm screws ❷ and bring knee lifter into position most comfortable for operator. Tighten screws ❷ securely.

This adjustment may require readjusting tension of spring on knee lifter

To adjust tension of spring on knee lifter, loosen collar screw ❸ and wind spring by placing wrench in collar screw ❸. Wind tight enough until knee lifter ❶ swings towards the operator, then tighten collar screw ❸ securely.

“S” hook ④ must always have slack between feed frame and lift arm ⑤ . To do this, first loosen lock nut ⑥ and turn limit screw ⑦ left or right until “S” hook is free of feed frame and lift arm. Hold screw in place and tighten lock nut ⑥

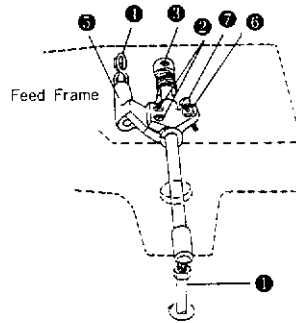


Fig. 2

## 6. Threading Machine (Fig. 3)

Turn handwheel of machine in clockwise direction away from operator until needle lever reaches its furthest left hand position.

Draw thread from spool on thread stand and pass it through rear eyelet ① of tension thread guide, then slide it between two tension discs ② , and pass it under guide ③ of tension thread guide, through eyelet of front thread guide ④ , then down through needle clamp hole ⑤ and pass it from the underside of needle hole ⑥ . Leave thread about 5 cm (2 inches) past needle hole.

To thread needle at point ⑥ , swing front plate out of way and depress cylinder out of way with knee lifter, then hold thread between index finger and thumb. End of thread must be stub not feather edge.

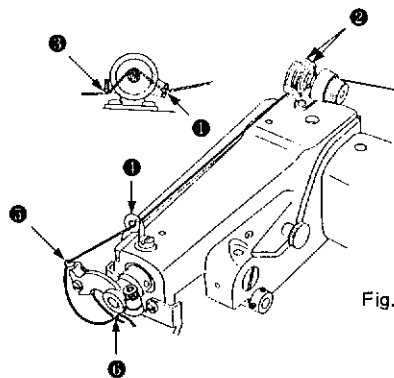


Fig. 3

## 7. Adjusting Thread Tension (Fig. 4)

Different kinds and weights of material and the various sizes of thread require respective thread tensions. Thread tension is regulated by turning the tension cap located at the top of the machine arm.

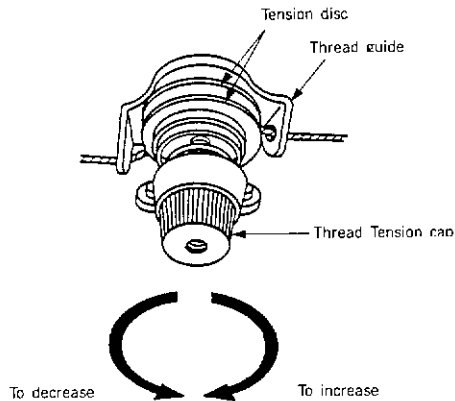


Fig. 4

To increase thread tension, turn the cap away from you (clockwise)

To decrease the tension, turn the cap towards you (counter-clockwise).

Do not turn, tighten, or loosen tension more than about one quarter turn at one time.

Test for results and readjust, if necessary.

## 8. Adjusting Rib to Needle (Figs. 5 & 6)

Press knee lifter to depress feed frame and turn handwheel away from operator (clockwise) until point of needle is at slot in cloth retainer (shoe) (Fig. 5). Slowly release knee lifter. The rib should JUST TOUCH THE NEEDLE (Fig. 6-1).

If rib is pressing up against needle (Fig. 6-2), turn dial toward "LESS" until rib just touches needle.

If rib is away from needle (Fig. 6-3), turn dial toward "MORE" until rib just touches needle.

When needle just touches rib (Fig. 6-1), machine is set to test. To test machine, when ratio is set 2 to 1 ratio – take single layer of material, place in machine and turn machine by hand. If machine catches once, then does not catch on next stroke, machine is ready to work. Keep dialing "MORE" or "LESS" until above results are obtained on silk or any thin goods. On heavy goods, it should catch on each stroke of needle.

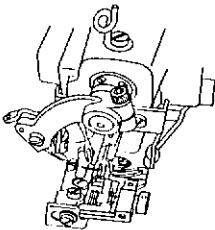


Fig. 5

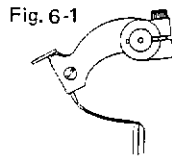


Fig. 6-1

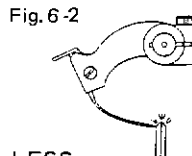


Fig. 6-2

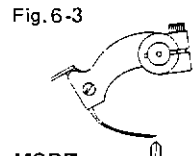
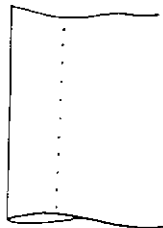
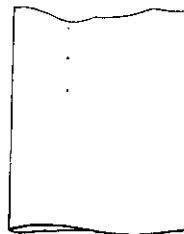


Fig. 6-3



If catching each time on light material, turn dial to "LESS" until it looks like the right figure.



Catches on thin material every other time. (Provided needle is good)

## 9. Replacing Needle (Fig. 7)

Turn handwheel away from operator (clockwise) until needle reaches the end of its return stroke (extreme left hand position).

Remove old or defective needle by loosening needle clamp screw ❶. Insert new needle into seat in needle clamp ❷ and needle lever ❸ as far as it will go. Make sure hole of needle is 0~1.0 mm (0.04") on the left end of presser foot ❹ and tighten needle clamp screw ❶.

Turn handwheel slowly away from operator and observe movement of needle. If rib is pressing up against needle, turn dial toward "LESS" until rib just touches needle (Fig. 6-2).

The curved portion of the needle should bear slightly on the needle guide groove ❺ in the left hand part of presser foot.

Always replace bent or blunt needles. They affect the satisfactory operation of machine.

## 10. Needle Recommendation

The recommended needle is system LW x 5T or 251EL.

#10	Fine knit rayon
#15	Fine knit wear
#20	Fine knit jersey
#25	Dresses and light fabrics
#30	Sports wear

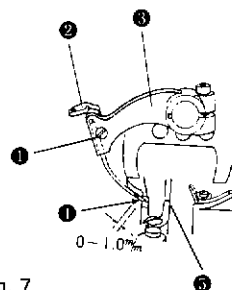


Fig. 7

## 11. Changing Stitch Ratio (Fig. 8)

To change stitch ratio, depress knee lifter and move lever ❶ to desired stitch ratio.

2-1	catches every other stitch
1-1	catches every stitch



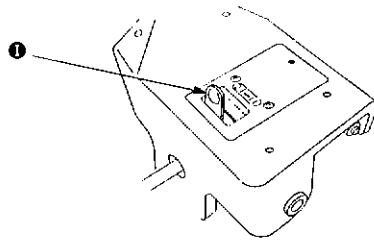


Fig. 8

## 12. Regulating Stitch Length (Fig. 9)

Loosen screws ① in stitch regulating collar ② and turn collar ② until desired number is reached by indicator notch of eccentric. The larger the number by the notch, the longer the stitch. The smaller the number by the notch, the shorter the stitch. Tighten screws ① securely.

Number on collar	5	6	7	9
Stitch length (m/m)	5	6	7	9

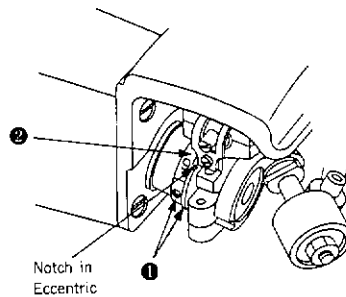


Fig. 9

## 13. Inserting the Work and Starting to Sew (Fig. 10)

Turn handwheel away from operator (clockwise) until needle reaches it furthest left hand position ①. Depress knee lifter, place the material in machine parallel with, and up under presser foot ②. Place edge of the material in slot of cloth retainer (shoe) ③ and at edge guide ④, and then completely release knee lifter.

Get the machine started slowly and watch the material pass edge guide ① rather than to observe the action of needle. Do not pull the material to help feeding, do not hold the material back, just hold firm but lightly.

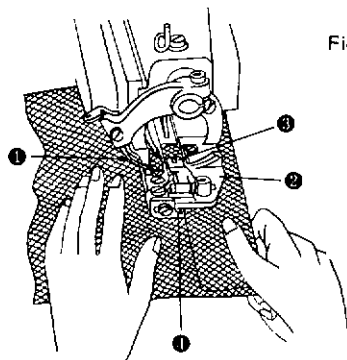
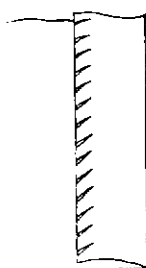
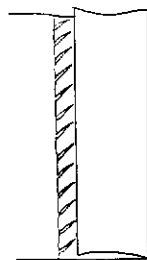


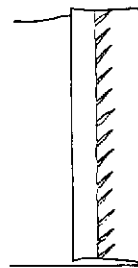
Fig. 10



Proper stitching



Material running off. Bring guide ① over a little to left.



Guide ① too far to left. Move guide over to right.

## 14. Removal of the Work from the Machine

Stop machine and turn handwheel away from operator until needle reaches the end of its return stroke (extreme left hand position). Depress knee lifter and pull the work-piece rearward and out of machine with a quick stroke. This will lock the last stitch and break the thread.

## 15. Adjusting Cloth Retainer (Fig. 11)

### (1) Position adjustment of Cloth Retainer

Loosen Cloth Retainer Bushing Set Screw ①, and turn Cloth Retainer Bushing ②, after checking that the center of groove on Cloth Retainer ③ should be in line with the top edge of rib.

Turn Bushing ② to clockwise; Cloth Retainer goes toward needle.

Turn Bushing ② to counter-clockwise; Cloth Retainer goes away from needle.

### (2) Height adjustment of Cloth Retainer

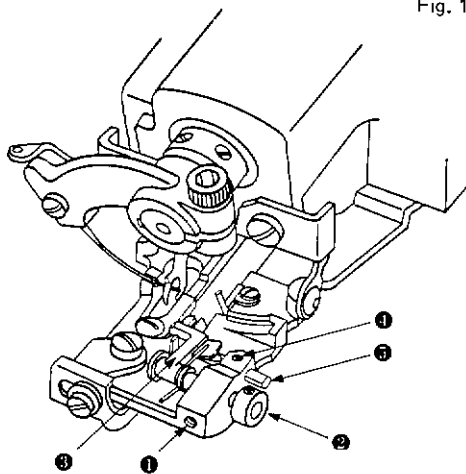
Loosen Cloth Retainer Adjusting Pin Set Screw ④, and slide Cloth Retainer Adjusting Pin ⑤ sideways.

Slide Pin ⑤ to left; Cloth Retainer goes up

Slide Pin ⑤ to right; Cloth Retainer goes down

After the above adjustment, tighten the screws ① & ④ firmly.

Fig. 11



## ADJUSTMENT

### 16. Proper Setting for Rib Connection (Figs. 12-1, 12-2 & 12-5)

Turn handwheel away from operator (clockwise) until needle is on the down stroke. When needle reaches the right hand edge of needle guide ❶, rib ❷ should stop and should not move until the point of needle passes over rib to other side of presser foot opening ❸.

If rib moves, make the following adjustments: first open top cover plate and loosen screw ❹ on eccentric ❺. Bring the point of needle back to the right hand edge of needle guide ❶. Then loosen screw ❻, keeping screwdriver in place. Move eccentric ❺ forward or backward until rib is at the stop position, holding needle in position with handwheel while performing this operation. Tighten screw ❻

If still not correct, readjust by loosening screw ❻ again, change angle of eccentric ❺ slightly forward or backward as needed and retighten screw ❻. When adjusted satisfactorily, be sure to tighten both screws ❹ & ❻ before putting machine into operation.

### 17. Setting Rib Shaft (Figs. 12-3 & 12-4)

When the point of needle is at the rib, open window plate, loosen screw ❼ and adjust rib to be 5 m/m ( $1\frac{3}{64}$ " ) between the center of needle and the end position of rib's forward movement as shown in fig. 12-4.

### 18. Adjusting Needle to Presser Foot (Figs. 12-5 & 12-6)

Turn handwheel away from operator (clockwise), bringing needle to the highest position at the left side. At this left point, the hole of needle should be 0 to 1.0 m/m (0.04") from the left hand edge of presser foot (Fig. 12-5). And bring needle to the end of stroke at the right side. At this right point, the point of needle should be 3 to 4 m/m ( $\frac{1}{8}$ " to  $\frac{5}{32}$ " ) from the right hand edge of presser

foot (Fig. 12-5).

To attain this, loosen eccentric ball screw ⑧ and turn eccentric ball ⑨ until needle reaches the above desired position (Fig. 12-6). Be sure to repeat the above adjustment so that the both sides will be settled as per Fig. 12-5.

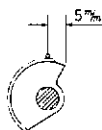
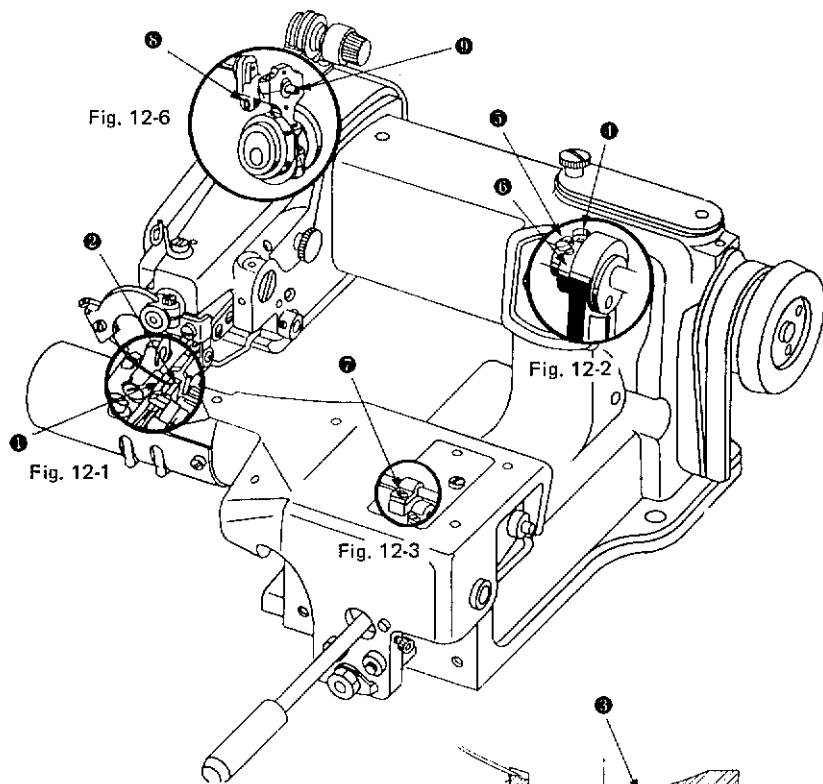


Fig. 12-4

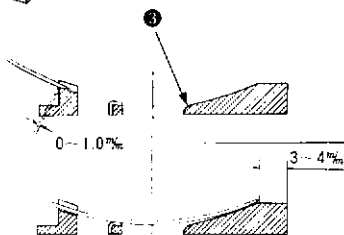
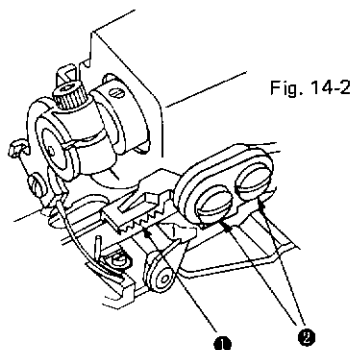
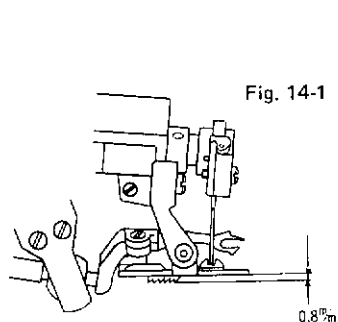


Fig. 12-5

## 20. Adjusting Feed Dog (Figs. 14-1 & 14-2)

Feed Dog should be 0.8 m/m ( $1/32''$ ) below presser foot and move in parallel with presser foot when the number of stitch length is at 5 (Fig. 14-1).

Be sure the feed dog ❶ clears the parts around feed dog ❶ when the number of stitch length is at 9. And secure feed dog set screws ❷ firmly. (Fig. 14-2).



## 21. Adjusting Skip Stitch (Fig. 15)

Place a piece of thin sample material in machine. Set stitch ratio on 2-to-1. Turn handwheel away from operator (clockwise) by hand so that needle catches on one stroke and skips a stitch on second stroke.

On the skip stroke, stop when the point of needle is at the rib. At this point, the space between skip stitch compensating screw ❶ and push rod ❷ should be 0.5 m/m (0.02'') ❸, [In the absence of a gauge, 0.5 m/m is about 5 thicknesses of average letterhead paper.] This adjustment is made by loosening lock nut ❹, adjusting screw ❶ so space at point ❸ is 0.5 m/m. Keep screw ❶ in place with screwdriver and secure lock nut ❹.

Once this is done, a similar adjustment on feed frame limit screw ❺ should be made. Loosen lock nut ❻, adjust limit screw ❺ so that space ❼ between screw ❺ and main frame of machine is 0.5 m/m (0.02''). Hold screw ❺ in place with screwdriver and secure lock nut ❻.

This adjustment is to prevent operator from mistakenly adjusting rib too high with "MORE/LESS" dial causing needle to strike rib and break.

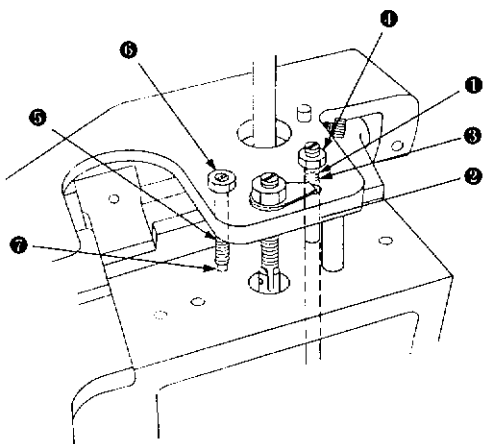


Fig. 15

## TROUBLE SHOOTING

Trouble	Cause	Inspection	Remedy	Page
Thread break	Poor-quality thread	Thread quality	Use thread of good quality	/
	Too thin needle	Needle size	Replace with a thicker needle	6
	Needle installed incorrectly	Direction and position of needle	See paragraph No. 9 "Replacing Needle"	6
	Needle, looper, presser foot, thread passage have defective	Flaw of Needle, looper, presser foot, thread passage	Smooth with sandpaper and polish with buff, or replace	/
	Thread tension too strong or weak	Thread tension control	Adjust to correct thread tension	/
Stitches skip	Wrong threading	Threading	See paragraph No. 6 "Threading Machine"	3
	Needle installed incorrectly	Direction and position of needle	See paragraph No. 9 "Replacing Needle"	6
	Needle point defective	Needle point blunt or bent	Replace with a good needle	6
	Looper defective	Looper blunt or broken	Smooth with sandpaper and polish with buff, or replace looper	/
	Relative of needle and looper or clearance between needle and looper are wrong	Timing or clearance between needle and looper	See paragraph No. 19 "Adjusting Looper"	12
Needle break	Too thin needle	Needle size	Replace with a thicker needle	6
	Needle installed incorrectly	Direction and position of needle	See paragraph No. 9 "Replacing Needle"	6
	Looper hit needle	Clearance between needle and looper	See paragraph No. 19 "Adjusting Looper"	12
Uneven stitch	Clearance between needle point and rib top too great	Height of rib	See paragraph No. 8 "Adjusting Rib to Needle"	5
Stitches too tight or loose	Thread tension too strong or weak	Thread tension control	Adjust to correct thread tension	/
Improper feeding	Feed dog installed incorrectly or worn out	Feed dog position or worn out	See paragraph No. 20 "Adjusting Feed Dog"	14