

CONSEW

MODEL 290R • 315R • 318R

ALL TYPES WITH AUTOMATED FUNCTIONS

Instruction Manual

FOREWORD

CONSEW Lockstitch Machine with various automated functions are highly reputed among both domestic and overseas customers.

In order to operate the machine correctly and get the full efficiency of machine performance, read this booklet carefully.

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* For the improvement, sewing machine parts and/or handling procedures are subject to change without prior notice.

I. INSTALLATION

1. POWER SUPPLY

Make sure that the electrical data on the name-plate of the motor is the same as the available power supply in respect to voltage, phase, frequency, etc. With all power supplies make certain that the grounding (earth) wire is always connected.

2. SYNCHRONIZER

Place synchronizer onto the machine according to the following procedure.

- (1) Insert L-shaped retaining bar (which is put into the accessories box together with other parts for setting the synchronizer) into the hole drilled into the machine arm at its right end.
- (2) Insert the adapter sleeve into the synchronizer. (Fig. 1) At the same time, make sure that the L-shaped retaining bar enters the groove at the rear bottom of the synchronizer and lock that bar onto the machine arm with C screw also found in the accessories box.
- (3) Turn the machine until the take-up lever reaches its highest position and put the timing mark on the needle bar is positioned as shown in Fig. 3.

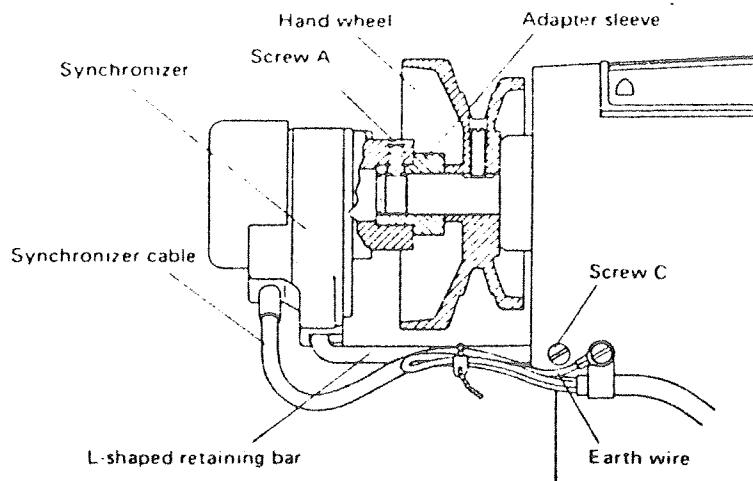


Fig. 1

(4a) PANASTOP MOTOR

Remove cover from synchronizer and turn its collar to set the yellow magnet carrier plate at position 2 on the synchronizer socket (Fig. 5) and tighten two screws A temporarily. DO NOT LOOSEN screw B as shown in Fig. 4 & 5, as the relative relation of 2 pcs of magnet carrier plates has been set at the factory prior to the delivery.

(4b) VARIOSTOP MOTOR

Remove cover from synchronizer and turn its collar to set the slot of disc C to the position of control head of synchronizer and tighten two screws A temporarily (Fig. 6 & 7). The relative relation for Disc B & C has been set at the factory prior to the delivery so that no further re-adjustment is necessary at this stage. For more detailed information it is suggested to consult with the VARIOSTOP Information Bulletin specifically issued for CONSEW Model 290R machine with automated functions.

(5) Connect the synchronizer cable to the machine as shown in Fig. 1.

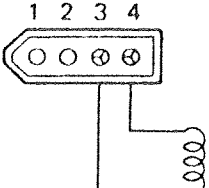
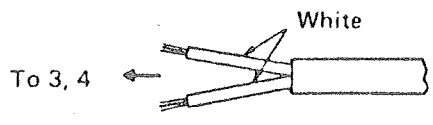
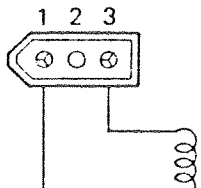
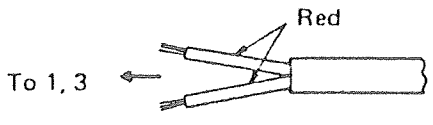
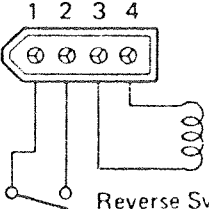
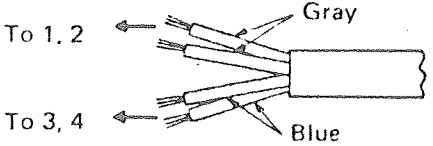
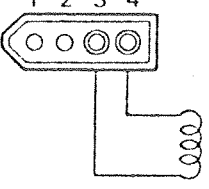
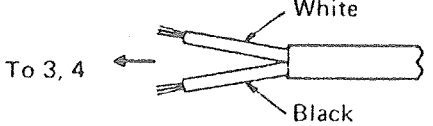
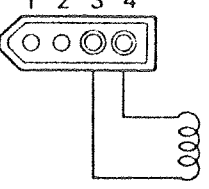
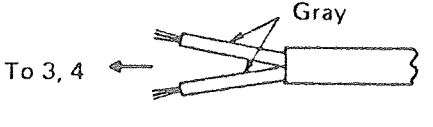
The synchronizer is now installed temporarily, but final adjustment of its setting will be required according to instructions I-5 & I-6.

3. CHECKING THE DIRECTION OF MOTOR ROTATION

- (1) Switch on motor after connecting synchronizer plug only onto control box.
- (2) The hand-wheel must rotate clockwise when watching from the face plate of sewing machine head.
- (3) In case the hand-wheel runs in the wrong direction, disconnect 2 of 3 power supply wires from connecting plug and reverse the connections.
- (4) After connecting wires correctly, assure yourself that the motor has stopped completely before restarting it.

4. WIRING – PANASTOP MOTOR ONLY

Wires of solenoids and switches incorporated into the machine and of the solenoids of automatic presser foot lifter are connected as shown below. Connect each plug into receptacle of control box.

Plug Connection	Wire
 <p>4 Pole White</p> <p>Trimmer Solenoid</p>	 <p>To 3, 4</p>
 <p>3 Pole Blue</p> <p>Wiper Solenoid</p>	 <p>To 1, 3</p>
 <p>4 Pole Blue</p> <p>Reverse Solenoid</p> <p>Reverse Switch</p>	 <p>To 1, 2</p> <p>To 3, 4</p>
 <p>4 Pole Black</p> <p>Foot Lifter Solenoid</p>	<p>Electromagnetic type</p>  <p>To 3, 4</p>
 <p>4 Pole Black</p> <p>Foot Lifter Solenoid</p>	<p>Pneumatic type</p>  <p>To 3, 4</p>

Note: These diagrams do not apply to VARIOSTOP installation.

Fig. 2

5. CHECK THE NEEDLE STOP POSITION AND PERFORMANCE OF THREAD CUTTING MECHANISM

- (1) Remove the needle plate.
- (2) Step on the pedal lightly and release it. DO NOT heel pedal: Check to make sure that the needle is stopped in the down position.
- (3) After assuring yourself that the needle is stopped in the DOWN position, heel the pedal to see that the needle rises to the upper position.
At this point make certain that the timing mark on the needle bar is located 0 — 2 mm below the bottom surface of the needle bar bushing as shown in Fig. 3. If the needle bar is in the wrong position, adjust the position according to instruction I-6.
- (4) At the same time, check that the moving blade of the trimming mechanism completes its operation and returns to its original position. Then replace the needle plate.

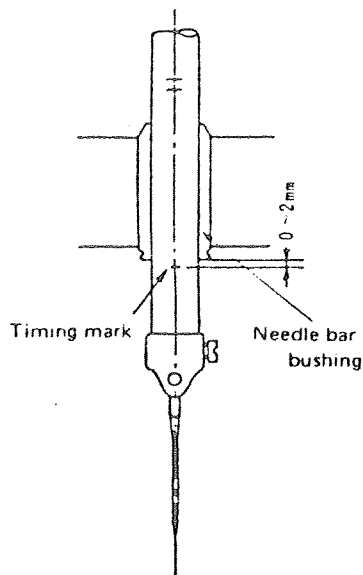


Fig. 3

6. ADJUSTMENT OF THE UPPER POSITION OF NEEDLE

If the needle bar does not stop in the correct position as indicated on 1-5, adjust the position of the synchronizer in order to obtain the correct needle position.

(6a) PANASTOP MOTOR

Adjustment of the synchronizer can be done by loosening two screws "A" as illustrated in Fig. 4. Under no circumstances should the screw "B" be loosened, otherwise the setting of magnet carrier plates, previously set at the factory, gets disturbed.

However, should screw "B" ever be loosened in error and the setting of magnet carrier plates be disturbed, reset them according to the following procedure:

- 1) Turn the machine to the "needle down" position, and set the red magnet carrier plate to position 1 on the synchronizer socket (Fig. 5).
- 2) Turn the machine again to the "needle up" position and set the yellow magnet carrier plate to position 2 on the synchronizer socket. Tighten the screw "B", thus reset is completed.

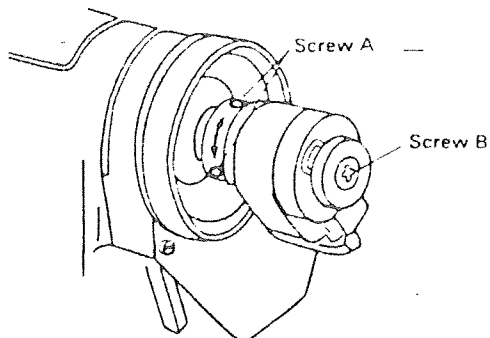


Fig. 4

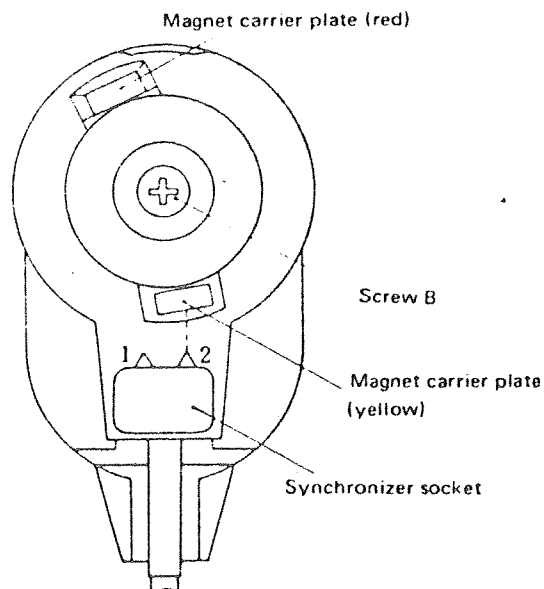


Fig. 5

(6b) VARIOSTOP MOTOR

Pursuant to motor manufacturer's instructions (see same) needle position is to be adjusted as follows:

The adjustment of synchronizer position can be done by loosening two screws A as illustrated in Fig. 6. Under no circumstances should positioning discs change, otherwise the setting of them previously set at the factory gets disturbed. However, should their setting be disturbed in error, reset them according to the following procedures.

- 1) Turn the machine to the "needle down" position and set the slot of disc B to the position of control head. (Fig. 7)
- 2) Turn the machine to the "needle up" position and set the disc C to the position of control head. At this time, take care not to disturbed the position of disc B previously set.

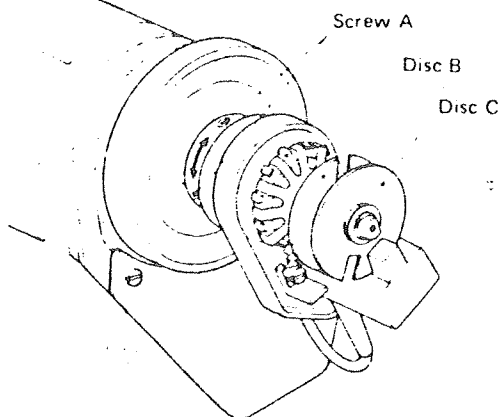


Fig. 6

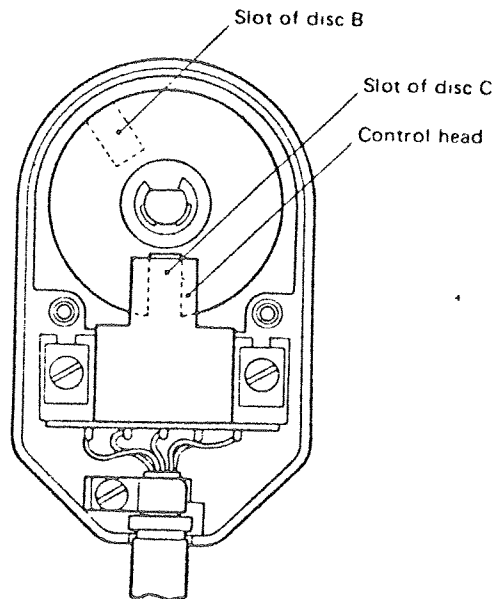


Fig. 7

7. SETTING OF THE BELT COVER

- (1) Place belt cover bracket A onto the machine and tighten 2 screws A.
- (2) Fix belt cover B by 3 screws B.

Be sure to put the belt cover onto the machine for safety.

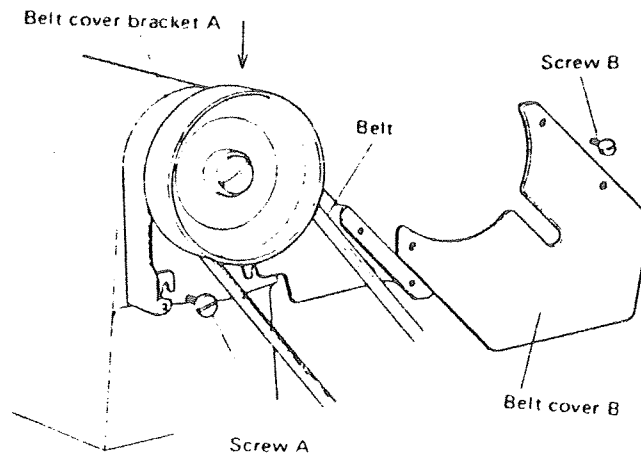


Fig. 8

II. GUIDANCE FOR OPERATION

1. TEST RUNNING OF THE MACHINE

- (1) Remove face plate and manually oil all the moving parts, take-up lever, needle bar, etc.
- (2) Supply 2 or 3 drops of oil to the groove of the rotary hook.
- (3) Run the machine at 3,000 r.p.m. intermittently for about 5 minutes and during this test – run, check oil for free flow. This can be checked through the oil gauge window.
- (4) It is recommended for the first several days the machine be operated at around 3,500 r.p.m., then gradually increase the speed of operation up to maximum speed.

2. THREADING THE MACHINE

Turn handwheel toward you until take-up lever reaches its highest point and then thread the needle as illustrated in Fig. 9.

3. BOBBIN AND BOBBIN CASE

To prevent excessive spin of bobbins, the use of aluminum bobbins and of a "NO-BACKLASH" bobbin case is recommended.

4. ADJUSTMENT OF THREAD TENSION

- (1) Turn the serrated nut of the tension device to the right for increase of tension and to the left for decrease.
- (2) Adjustment of the stroke of check spring can be done by rotation of the whole tension device after loosening screw A. The tension of the check spring can be adjusted by turning the tension stud by putting a screw driver into the slot of the tension stud. Check spring must start its action when the hook point reaches its lowest position, with the upper thread loose.

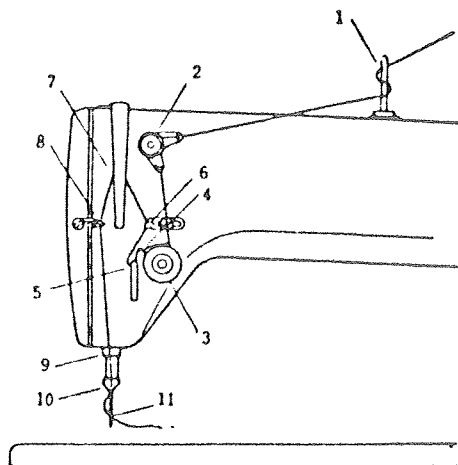


Fig. 9

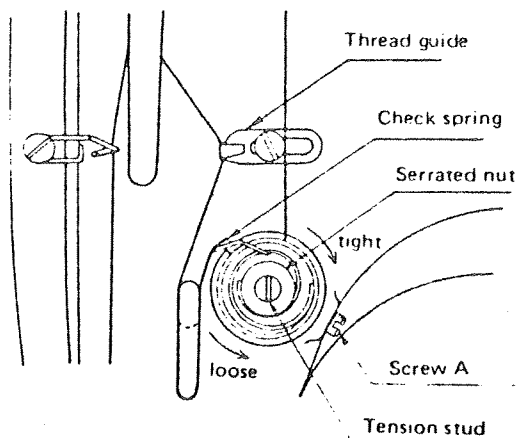


Fig. 10

5. REGULATING THE LENGTH OF NEEDLE THREAD TAIL

The supplementary tension (No. 2) illustrated in Fig. 9, controls the length of needle thread remaining in the needle after thread trimming is completed.

Turn adjustment nut to the left for longer tail and to the right for shorter.

Note: This tension device is not for the adjustment of upper thread tension.

6. HOW TO OPERATE TREADLE

The pedal action involves 4 steps or 5 steps, as shown below.

Step No. 4 is available on the machine with automatic presser foot lifter.

ACTION	FUNCTION	ILLUST NO.
Depress pedal forward strongly	Machine runs at high speed	1
Depress pedal forward softly	Machine runs at low speed	2
Pedal is at neutral position	Needle in "down" position	3
Heel pedal softly	Presser foot rises. (On the machine with automatic presser foot lifter.)	4
Heel pedal strongly	Needle is held at the "upper" position after thread trimming is completed. (On the machine with automatic presser foot lifter, presser foot rises after needle stops at the "needle up" position.)	5

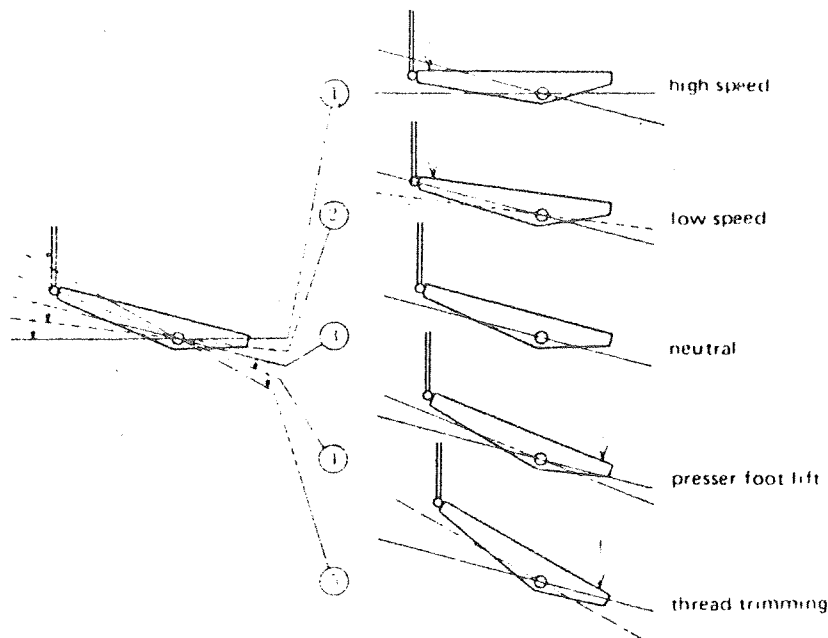


Fig. 11

7. KNEE LIFT OF PRESSER FOOT

Make sure that the knee lifter is pressed only after the thread trimming operation is completely effected.

On the machine with automatic presser foot lifting device, the timing of the rising of presser foot is automatically controlled.

8. CONTROL FUNCTIONS

Irrespective of the equipment of the sewing head, it can perform only those functions for which the control box of the motor is designed and, of course, vice versa. A machine lacking certain functions cannot perform them, even though the control box of the motor might be equipped to control such functions.

CAUTION: Every control box is carefully tuned at the factory.

Therefore, none of its settings must be disturbed at any time, lest the correct test instrumentation is available.

For any information concerning the motor and its control box, always refer to the Motor Manual.

9. SAFETY CIRCUIT

- (1) A safety circuit is designed into the main electronic system to prevent the machine from running during the thread trimming and thread-wiping operations.
- (2) Speed of the thread trimming and automatic reverse stitching are set and fixed at the factory. A Tachogenerator installed in the synchronizer gives the machine predetermined fixed speeds for the above operations, irrespective of size of the motor pulley.
- (3) If and when the machine is jammed due to any causes, another safety circuit blocks the operation of the thread-trimming mechanism and prevents damage to blades and solenoid. In that event, the machine will not run, even when depressing the pedal. Cut off the power supply first and make sure that the thread-trimming mechanism is in order, then switch ON the power supply again.

10. MACHINE SPEED

- (1) Machine speed varies depending on the size of the motor pulley used. Accordingly, change the size of the motor pulley when the machine speed should be changed.
- (2) Pre-fixed speed: needle positioning — thread trimming — predetermined automatic reverse stitching speed, are fixed by a micro-computer at the factory and are not affected by the size of the motor pulley.

III. ADJUSTMENT

1. ADJUSTMENT OF TIMING BETWEEN NEEDLE & HOOK

- (1) Lower the needle bar with the handwheel until it reaches the lowest position. At this point, make sure that the upper timing mark meets the bottom of needle bar bushing. If not, adjust it by loosening needle bar bracket screw.
- (2) When the lower timing mark meets the bottom of the needle bar bushing by turning handwheel forward, the hook point should meet with the center of the needle.
- (3) The hook should be set so that the clearance between needle and the hook point is 0.03 — 0.07 mm (0.001" — 0.003").

★ M315R ONLY

Set Feed-Regulator-Dia scale to "0" position before this adjustment.

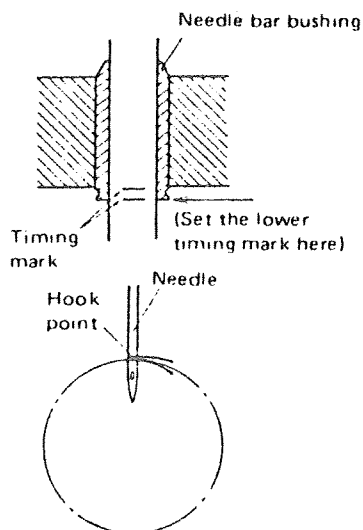


Fig. 12

2. CONTROL OF OIL SUPPLY

- (1) Oil supply to the rotary hook can be controlled by adjustment of the control valve at the underside of the machine bed as shown in Fig. 13.
- (2) Oil supply to the take-up lever can be adjusted by the control screw shown in Fig. 14. The oil supply is maximum when the spot marked on the control screw is at the "A" Position and minimum at "B" Position.

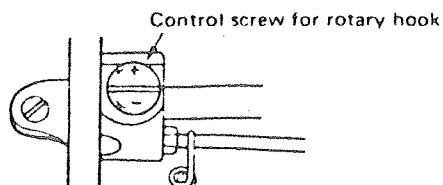


Fig. 13

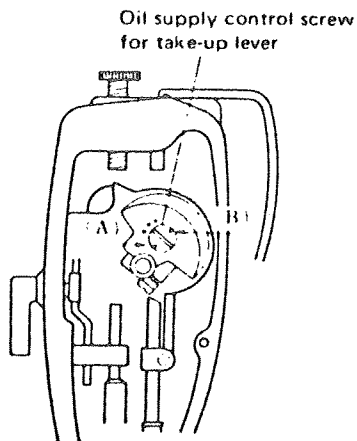


Fig. 14

3. THREAD TENSION RELEASE

The needle thread tension discs, synchronized with thread trimming mechanism to remove the tension of upper thread, must start opening when the thread tension release arm moves extremely left-hand as shown in Fig. 15.

If the tension discs do not open as mentioned above, adjust respective parts in accordance with the following procedures;

- (1) Loosen thread tension control unit mounting screw, then push it as far as it goes and re-tighten the mounting screw.
- (2) Loosen thread tension release arm nut, then re-position cable-end-nuts for proper discs clearance.

CHECK: When cable-end is adjusted in accordance with above item (2), check the following points;

- (a) Solenoid plunger as illustrated in Fig. 15 must actuate freely for maximum travels by manual operation when needle is reaching almost the highest position.
- (b) Solenoid plunger must return to the original position by spring tension freely when pressed it manually toward an arrow direction and released, as shown in Fig. 15.

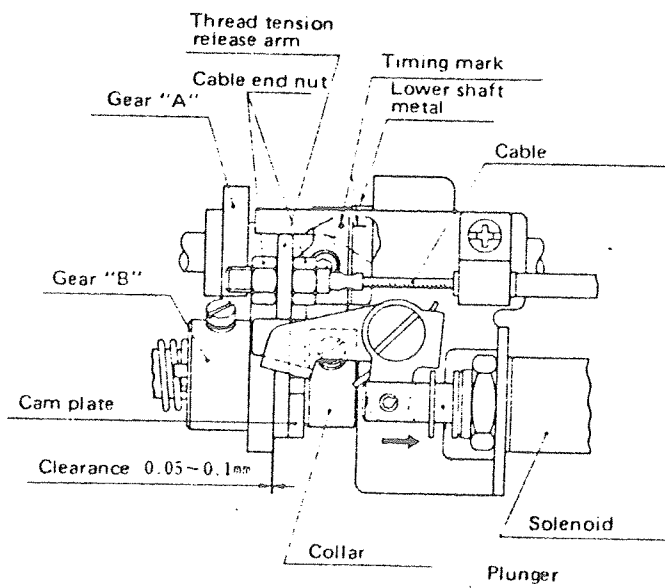


Fig. 15

4. TIMING OF THREAD CUTTER

- (1) Best timing condition (Fig. 16)

When the needle is at the lowest position, basic timing line marked on the lower shaft bushing coincides with the timing mark on the thread cutting gear "A" which revolves with the lower shaft.

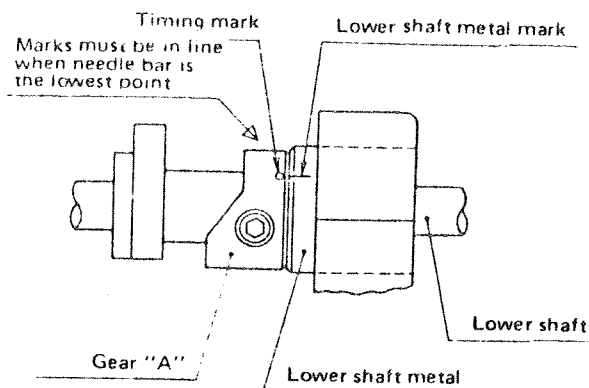


Fig. 16

(2) Adjustment of thread cutting mechanism

(a) Meshing gears "A" and "B"

Press solenoid plunger toward an arrow direction (Fig. 15), while handwheel is turning toward you until cam plate contacts gear "A", so that gear "B" moves left-hand to mesh gear "A". The meshing clearance between gears "A" and "B" must be at 0.5 mm as shown in Fig. 17.

(b) When sewing machine torque becomes abnormally heavy at the meshing of gears "A" and "B" or do not mesh each other, contact catcher-holder to the stopper and loosen cutter lever mounting screw to re-position gear "B" to obtain the correct clearance 0.5 mm as shown in Fig. 17. Re-tighten cutter lever mounting screw.

CHECK: After adjustment is made in accordance with above (a) & (b), check the clearance between cutter lever and bed for 0.5 mm as shown in Fig. 18.

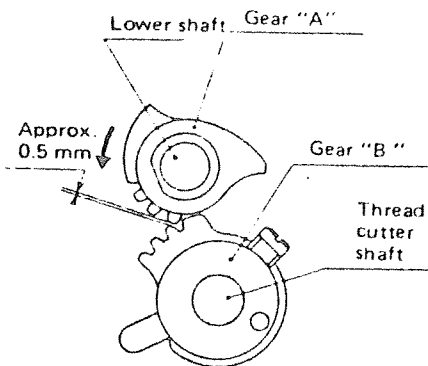


Fig. 17

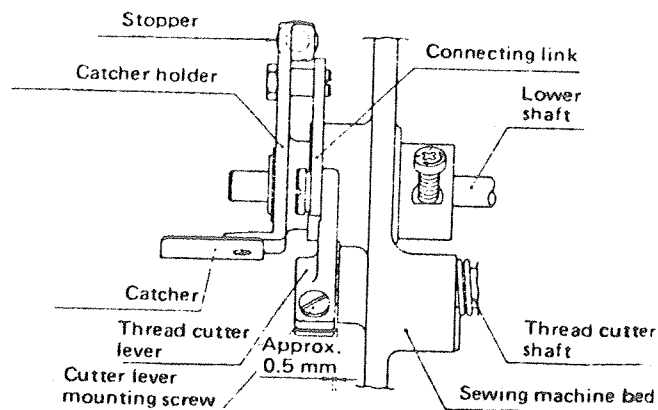


Fig. 18

(3) Adjustment of thread cutter shaft collar (Fig. 15)

(a) When thread cutter shaft collar screw is loosened and re-tightened, adjust clearance between thread cutter shaft collar and cam plate for 0.05 – 0.10 mm.

CHECK: Thread cutter solenoid must return to the original position, when pressed toward an arrow direction and released (Fig. 15).

5. REPLACEMENT OF MOVING BLADE

Replacement can be made easily by loosening the clamp screws.

When replacing the moving blade, it is suggested that the stationary knife be also replaced or re-ground.

IV. THREAD WIPER (AD157 ONLY)

- (1) Attach solenoid ass'y 1 on the machine arm with screws 2 as illustrated in Fig. 1. Use screw holes for thread take-up lever cover and arm boss.
- (2) Remove two screws 4 from switch holder 3 and install stopper 5 over switch holder, using one screw temporarily. (Fig. 1)
- (3) Assemble spring support 16, cushion rubber 17 and spring 18 by this order onto plunger 7, then insert this plunger 7 into solenoid. (Fig. 1)
- (4) Install wiper link 6 on switch holder 3 by screw 8. Care must be exercised that stopper 5 is installed so as to the wiper link long groove A locates exact vertical position against sewing machine bed surface. Then, tighten screw temporarily installed in above step (2).
- (5) Install wiper shaft holder 15 on presser foot bar, after wiper arm 9 round tip is inserted into wiper link 6 longer groove. Adjust wiper shaft 10 height at 41.5 mm when feed dog teeth is below needle plate surface and also wiper shaft direction is adjusted so as to wiper arm 9 moves smoothly inside of wiper link 6. Then, tighten wiper shaft holder screw 11.
- (6) Adjust wiper position 12 so as to obtain the following clearances after loosening screw 14 as illustrated in Fig. 2 & 3, then tighten this screw 14.
 - (B) Wiper lowest point must be 1.5 — 2.0 mm from presser foot upper surface, when wiper is not in operation.
 - (C) Wiper tip must be located 1.5 — 2.0 mm from presser foot inside cut-out, when wiper is not in operation.
 - (D) Wiper edge must be 0 — 0.5 mm from presser foot outside edge, when wiper is not in operation.

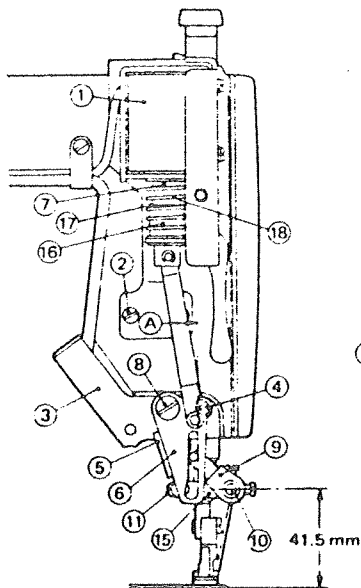


Fig. 23

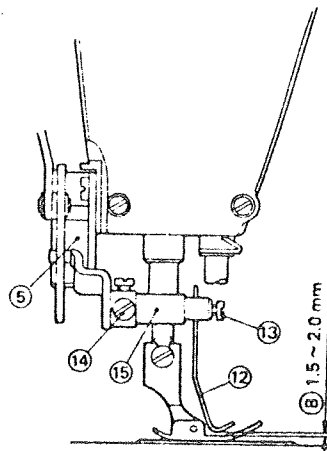


Fig. 24

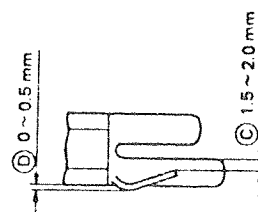
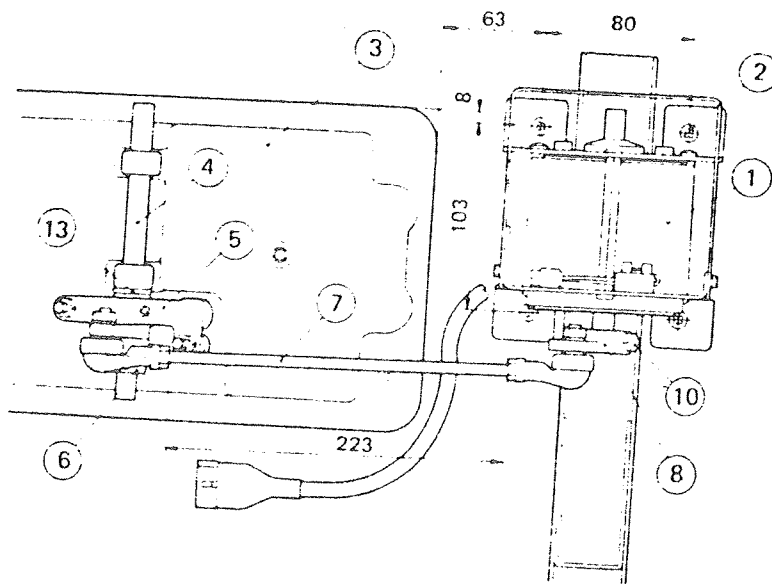


Fig. 25

V. AUTOMATIC PRESSER FOOT LIFTER (Electromagnetic Type)

(1) Installation

- 1) First spot drill holes for wood screws at the underside of table top for installation of foot lifter solenoid 1 and securely attach the solenoid 1 with 4 wood screws 2. (Fig. 26)
- 2) Attach the component parts to oil pan by referring to Fig. 26 & 27.
Insert presser lifting shaft 4 into flat washer 13 and presser bar lifter arm 5 and locate shaft 4 with collar 6.
- 3) Attach drive arm 8 to foot lifter solenoid shaft and then fasten ball joint to lifter arm 5 with nut, which completes the procedure required for attaching the rod assembly.



Conversion Table

mm	inch
223	8-25/32
103	4-1/16
80	3-5/32
63	2-1/2
8	5/16

Fig. 26

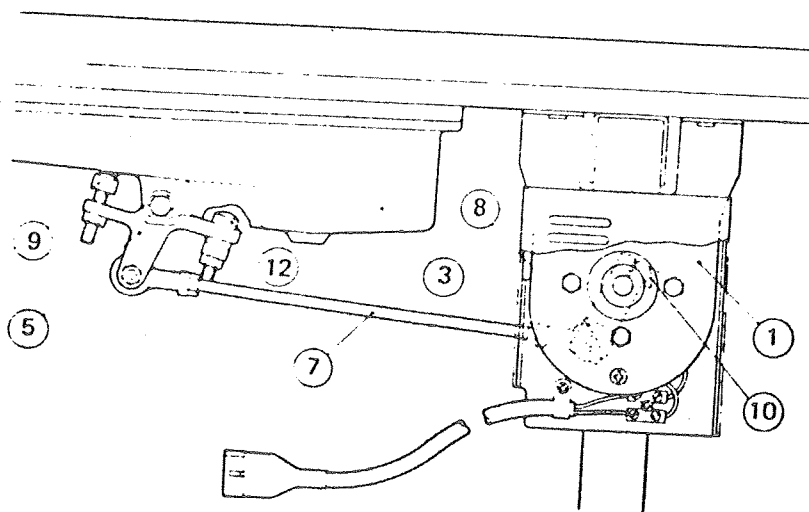


Fig. 27

(2) ADJUSTMENTS

- 1) Be sure presser foot of machine is fully lowered and manually push arm 5 in direction "R" until slight resistance is felt. Hold arm in this position.
- 2) Adjust stopper 9 temporarily so that the clearance between it and oil pan is 4 mm (5/32"). (Fig. 28)
- 3) Now push arm 5 in direction L until stopped and tighten onto solenoid shaft drive arm 8 by means of bolt 10. (Fig. 27)
- 4) Reset stopper 9 from its temporary position, raising it approximately 2 mm (5/64"), and tighten locknut 11. (Fig. 28 & 29)
- 5) To adjust the amount of presser foot lift, use adjustment of stopper 12. Be sure to tighten its locknut upon completing adjustment.

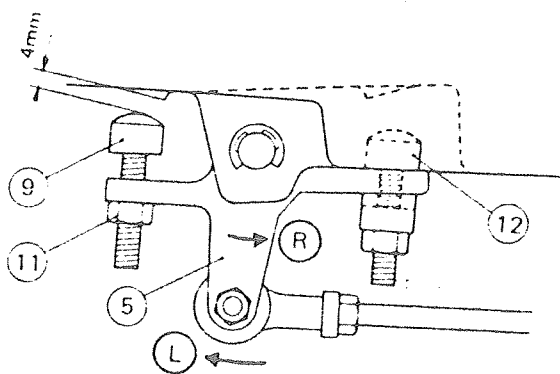


Fig. 28

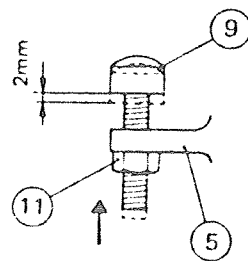


Fig. 29

VI. AUTOMATIC PRESSER FOOT LIFTER (Pneumatic Type)

(1) Installation

- 1) First drill two holes (6.5 mm in diam.) on oil pan for installation. Refer to Fig. 30 for details.
- 2) Attach cylinder unit 1 to oil pan with bolts 2 making certain that the part A contacts oil pan. (Fig. 31)
- 3) Insert presser lifting shaft 4 through presser bar lifter arm 5 and connect ball joint 6 to presser arm 5. (Fig. 32)
- 4) Place spring 7 and collar 8 onto shaft 4. (Fig. 32)
Take care to set collar 8 so that arm 5 moves freely.

(2) Adjustment

The stroke of presser foot by air cylinder is already set at 7 – 9 mm in the factory.

If change is necessary, make adjustments according to the following procedures.

- 1) Loosen nut 9 on stopper. (Fig. 32)
- 2) Turn stopper 10 (Fig. 31) to the right for longer stroke and to the left for shorter, and lock nut 9 after getting the stroke you need.

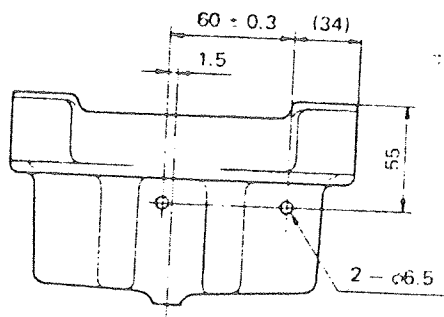


Fig. 30

Conversion Table

mm	inch
60 ± 0.3	2-23/64 ± 1/64
55	2-11/64
34	1-11/32
1.5	1/16
φ6.5	φ1/4

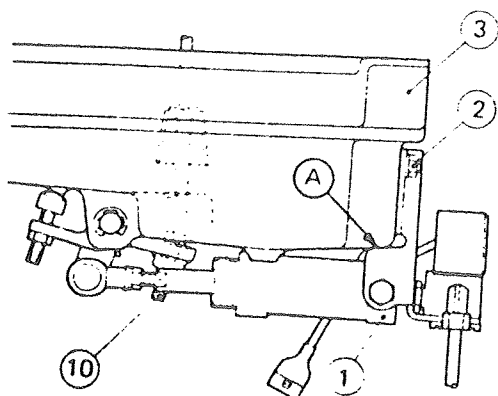


Fig. 31

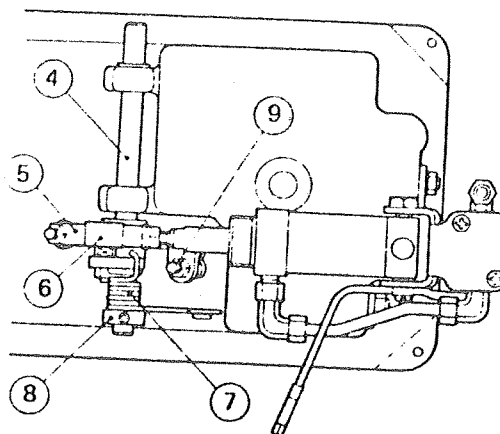


Fig. 32

(3) How to operate regulator-filter

- 1) Connect air hose to intake plug of air filter regulator.
- 2) Available air pressure should be 4–5 kg/cm^2 (57–71 psi). (Recommended pressure should be 4 kg/cm^2 (57 psi).)
Turn regulator dial clockwise to increase pressure and counterclockwise to decrease it.
- 3) Remove accumulated water from air filter every 10 days by pushing drain button.

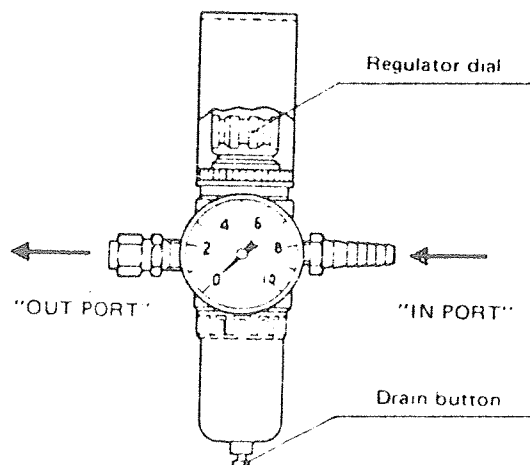
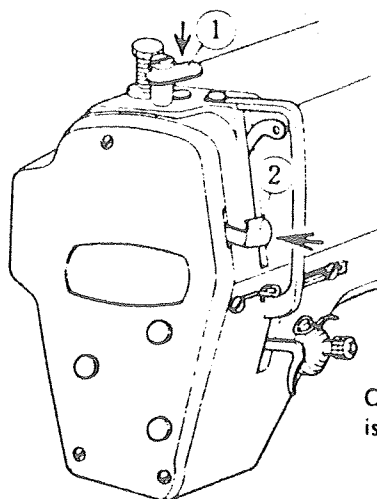


Fig. 33

VII. SPECIAL NOTE FOR M318R ONLY

1. CUTTING OPERATION



Push down lever "①" to operate the knife.

Push knob "②" to stop cutting.

Operate lever ① or knob ②, after machine is completely stopped.

Fig. 34

2. HOW TO INSTALL KNIVES (M318R ONLY)

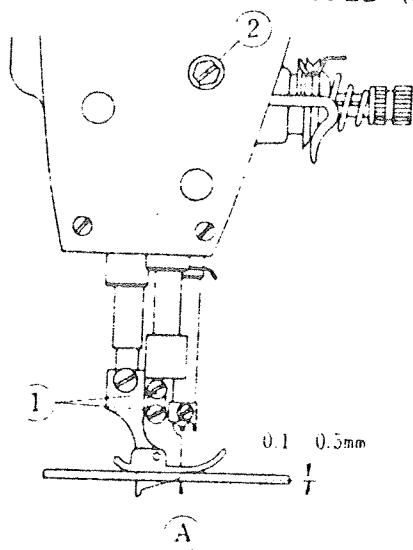


Fig. 35

- (1) Install UPPER KNIFE as far as it goes and secure it with two screws ①.
- (2) UPPER KNIFE edge A toward you must be set 0.1—0.5mm lower than LOWER KNIFE upper edge when needle bar locates the lowest position. This adjustment is done by loosening screw ②.
- (3) UPPER and LOWER KNIVES must be parallel. If not parallel after replacement of UPPER KNIFE, loosen screw ② and adjust the angle of the UPPER KNIFE for sharp cutting.

3. HOW TO CHANGE CUTTING WIDTH

- (1) The cutting width is set by the gauge set. Whenever gauge set is changed, adjust UPPER and LOWER KNIVES position correctly by loosening screw ①.
- (2) Whenever gauge set is changed, adjust UPPER and LOWER KNIVES for parallel by loosening screw ②.

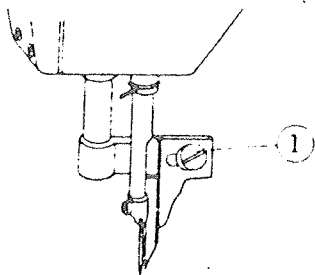


Fig. 36

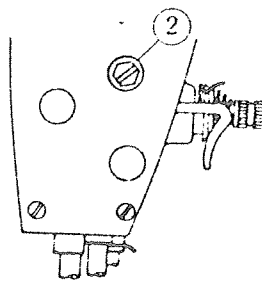


Fig. 37

CAUTION

- (1) Extreme care must be exercised in handling of knives.
- (2) Whenever changing knives, needle and/or making any adjustments near KNIVES, turn off the motor power switch.

VIII. MAINTENANCE

- (1) In order to enable it to perform at fullest efficiency, clean the machine by removing lint from around hook and parts of the thread trimmer daily after use.
- (2) Wipe off dust and lint accumulated around oil pan.
- (3) In order to keep the motor in good operating condition for a long service time, follow carefully all maintenance instructions as stated in the Manual issued specifically for the motor. Particularly be sure to apply at least every six months of operation the special coating agent provided for the clutch and brake friction surfaces. This coating agent is furnished as an accessory with the motor and no other material must be used in its stead under any circumstances. Again, refer to the motor Manual.
- (4) The motor is equipped with an air filter which, depending on environmental conditions, will sooner or later become clogged with dust and lint. To assure continued flow of cooling air to the motor and to prevent its over-heating with possible damage to its components as a consequence, this filter must be cleaned as soon as it is noticed that it has become clogged. For further information, refer to Motor Manual.

