

SINGER

**299U250W,251W,253SW,253MW,
253LW**

SINGER*

Service Manual

299

U 250W

U 251W

U 253SW

U 253MW

U 253LW

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This service manual contains instructions for adjusting and servicing convertible cut before/cut after straight and eyelet end buttonhole machine. For items not contained in this manual, please refer to Service Manual for 299U230 machine.

Adjustment of Starting System and Spreader

Note: Be sure the machine is in proper stop position (work clamp carrier at its rearmost position) when making adjustments.

1. To adjust the closing lever sensor shut off plate.(Fig.1)

Loosen nut(7) on screw(6) and move sensor shut off plate(4) as required so that it will shut off the sensor(5) when needle thread pull-off(3) descends to its lowest position. Then tighten nut(7).

Note: When adjusting the sensor shut off plate, every care should be taken so that it will not interfere with the inner side or the bottom of the sensor.

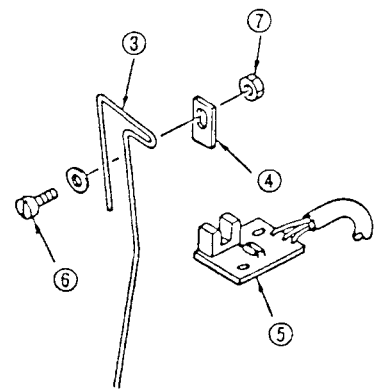


Fig.1

2. To adjust the spreader. (Figs.2 and 3)

Regardless of whether the machine is used as cut before or cut after, adjustment of spreader and spreader for cut before should be made first.

Cut before machine:

Loosen spreader sensor shut off plate screw(8) when spreader lever(64) is moved to its extreme forward position by spreader cam(2) on the cutting driving wheel(1) and adjust spreader lever adjusting plate(65) so that there is 0.2-0.3 mm clearance between spreader lever adjusting plate(65) and spreading and unspreading plate. (adjustable)(66)

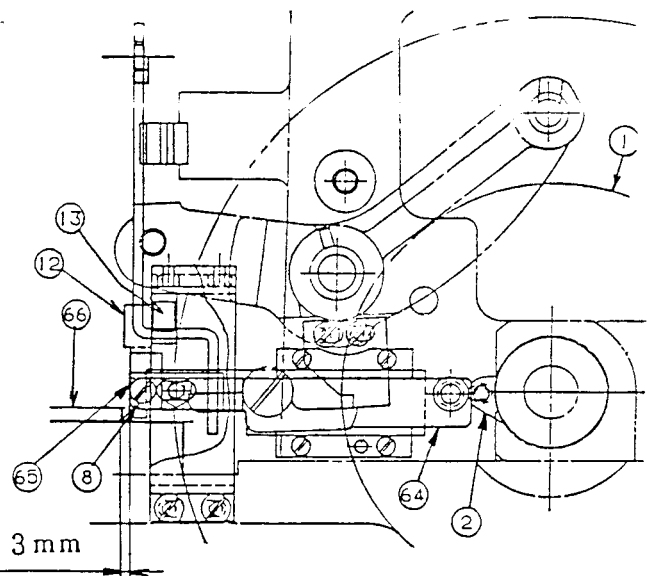


Fig.2

Cut after machine:

Loosen two spreader lever operating plate screws(9) and move spreader lever operating plate(69) backward or forward as required so that there is 0.1-0.2mm clearance between spreader lever adjusting plate(65) and spreading and unspreading plate (adjustable)(66) when engaging stud(8) is pushed back approximately one half its length by disengaging block (68) on the cutting shaft pulley(67) and spreader lever operating pawl is engaged in the notch in spreader lever operating plate(69).

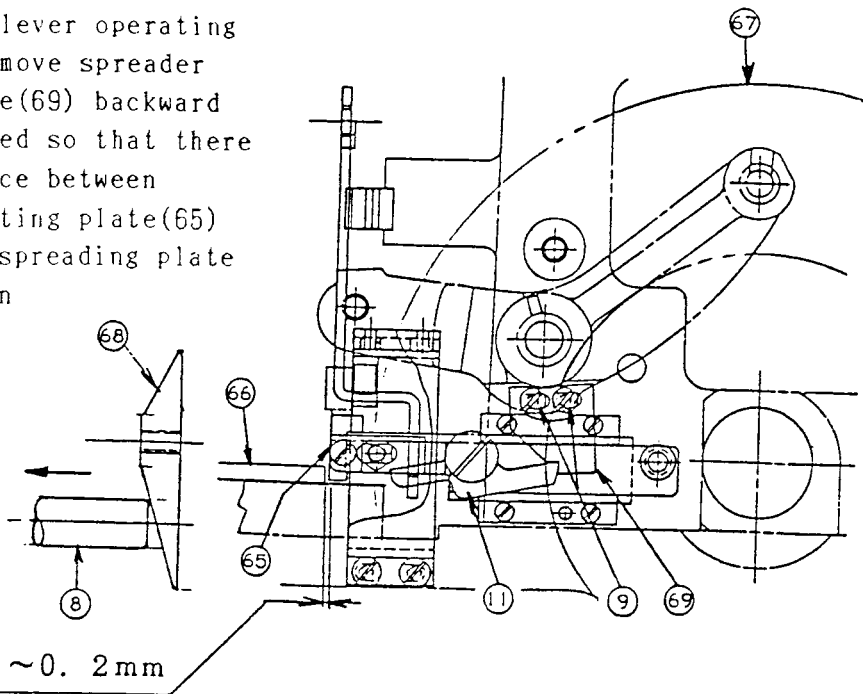


Fig.3

3. To adjust the spreader sensor shut off plate.(Figs.2 and 4)

Loosen two spreader sensor bracket screws(16) when spreader lever(64) is at its rest position and move sensor bracket(15) backward or forward as required so that spreader sensor shut off plate (12) on the bracket will shut off the spreader sensor(13).

Note:Make sure the shut off plate(12) does not shut off the spreader sensor when spreader lever(64) is pushed out to its extreme outward position by spreader cam(2), Fig.2. Also make sure the shut off plate(12) does not interfere with the inner side of the sensor when passing through the sensor.

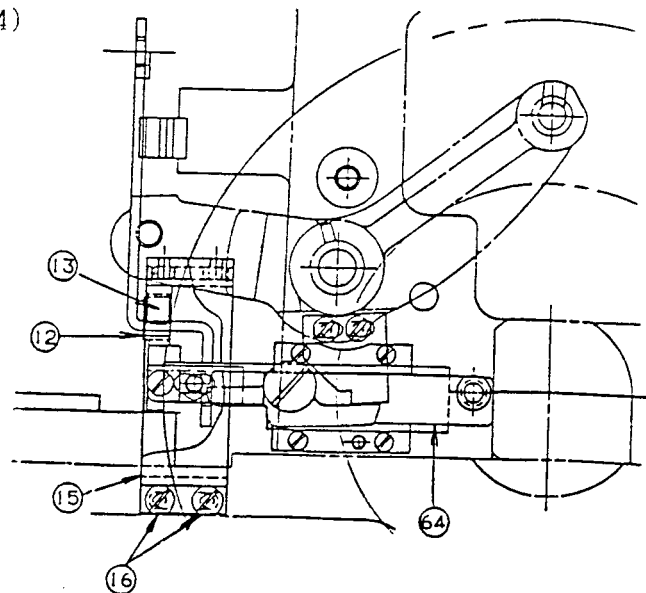


Fig.4

4. To adjust clearance between cutting starting lever plate extension and spreader lever. (Fig.5)

Loosen two screws(18) and move extension(17) upward or downward as required so that there is 0.1-0.2 mm clearance between top surface(A) of extension and underside(B) of spreader lever(64).

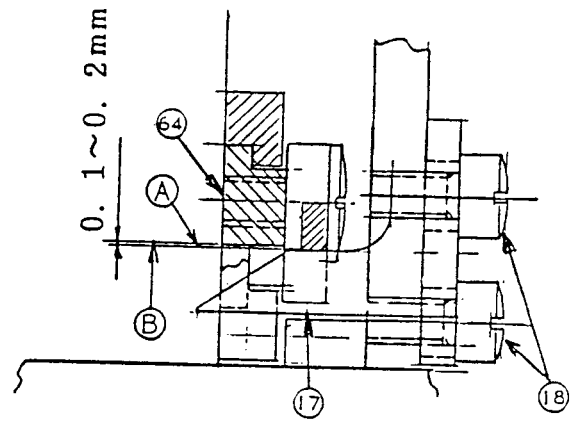


Fig.5

5. To adjust the spreader releaser lever. (Fig.6)

With the starting rod(22) in the raised position, loosen two spreader releaser lever screws(21) and adjust vertical and lateral setting of spreader releaser lever(19) so that there is 0.2-0.3mm clearance between lower end of spreader lever operating pawl(20) and upper surface of spreader releaser lever(19) and also so that the lower end(C) of releaser lever (19) is flush with the left side of spreader lever operating pawl(20).

Note: Check and make sure there is more than 1mm clearance between spreader releaser lever and sensor bracket when spreader releaser lever is in above setting.

Also make sure the spreader releaser lever(19) does not interfere with the spreader sensor(13) when starting rod (22) is pushed down.

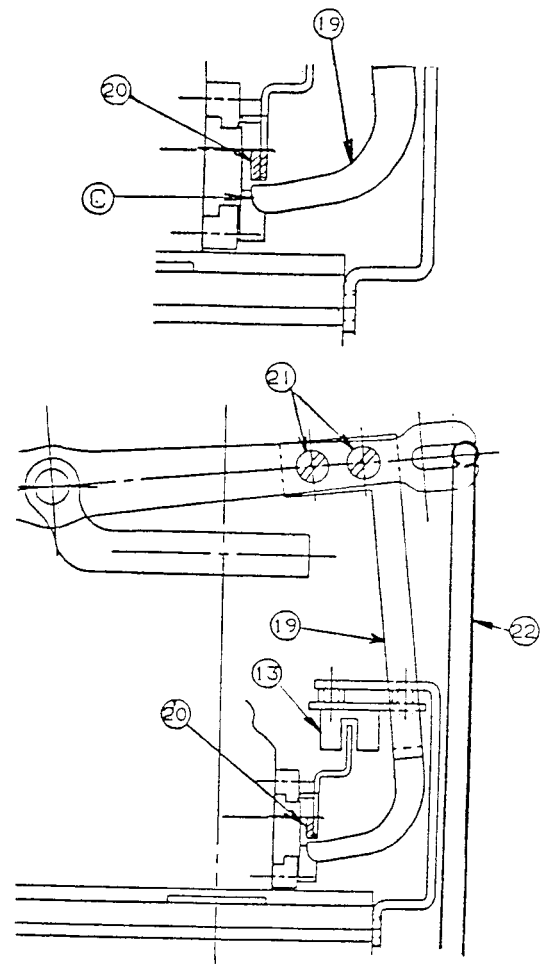


Fig.6

Adjustment of Cutting Mechanism

1. To adjust the cutting starting lever arm. (Fig.7)

Loosen two cutting starting lever arm screws(23) and adjust cutting starting lever arm(24) so that there is 0.5mm clearance between starting lever arm(24) and cutting starting lever trip adjusting point(25) on cutting safety lever(26) when cutting safety lever extension is engaged in the notch in cutting safety cam on the pattern wheel shaft. (machine in stop position)

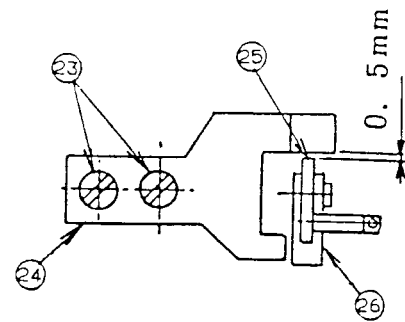


Fig.7

2. To set cutting starting solenoid and bracket in position. (Figs.8 and 9)

Loosen two bracket screws(27) and move bracket(70) backward or forward, as required, so that there is 0.2-0.3mm clearance between cutting starting lever restoring screw stud (30) on the cutting starting lever and cam groove of cutting driving wheel (29) when plunger of cutting starting solenoid (28) is fully drawn back. Then loosen nut (72) and screw (71) and move solenoid(28) up or down as required to provide clearance between starting lever arm (24) and cutting starting solenoid pin(34).

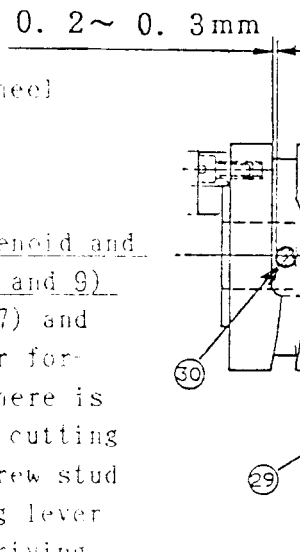


Fig.8

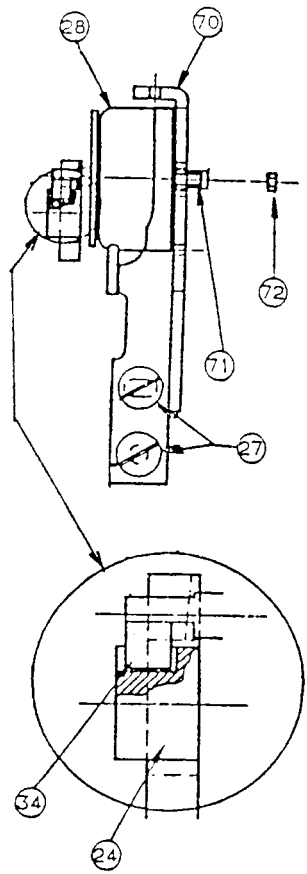


Fig.9

Note: Be sure the solenoid pin(34) is adjusted so that it will rotate approximately 15 degrees to the left and to the right.

3. To adjust cutting starting lever arm sensor shut off plate. (Fig.10)

With machine in above condition (item 2), loosen two cutting starting lever arm sensor shut off plate screws(36) and adjust sensor shut off plate(37) so that it will shut off the sensor. Then rotate cutting shaft pulley one turn and check that sensor(31) is not shut off by sensor shut off plate(37) when starting lever arm returns to its original position.

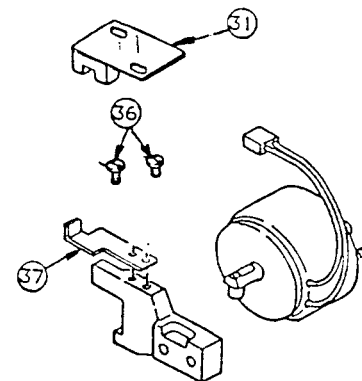


Fig.10

Adjustment of Stop Lever Link Sensor Shut Off Plate(Figs.11 and 12)

1. With the machine in stop position (stop lever interlocking slide engaged in notch in driving wheel stop cam), loosen two stop lever link sensor shut off plate screws(38) and adjust sensor shut off plate(39) taking care it does not shut off the sensor(41).
2. Turn pattern wheel(46) with a wrench and check and make sure the sensor is shut off by sensor shut off plate(39) when stop lever operating plate (43) reaches the top of pattern wheel ring adjusting segment(start)(47).
Note: Check and make sure the sensor shut off plate does not interfere with the inner side of the sensor when passing through the sensor. Also, provide 0.1-0.2mm clearance between stop lever lock block (44) and stop lever lock lever(45) by regulating eccentric screw (48).

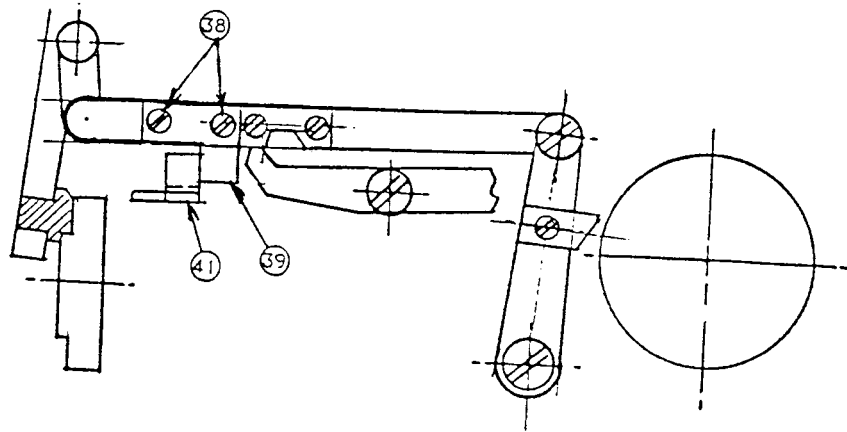


Fig.11

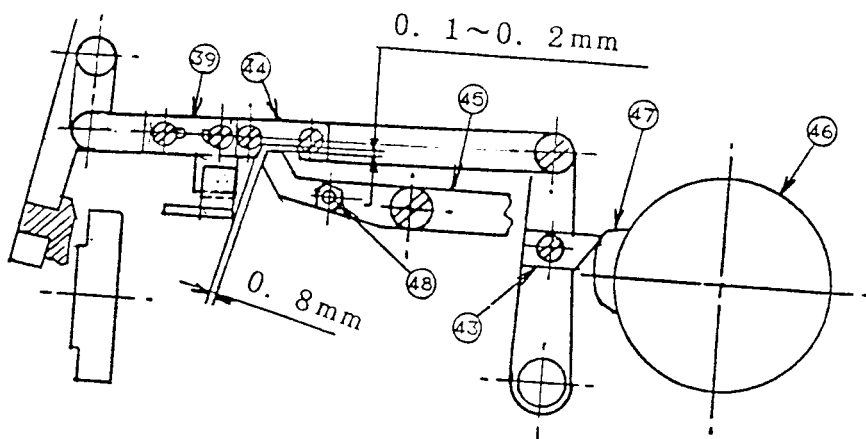


Fig.12

Adjustment of Rapid Feed Electromagnetic Clutch.

1. To adjust the rapid feed electromagnetic clutch and rapid feed electromagnetic clutch connecting bushing.

Loosen three screws(53) and assemble ball bearing(56) and connecting bushing(54) to hub(52). If there is any axial play in rapid feed shaft, add spacer(55) (available in 0.1 and 0.2mm thickness) to the right side of the ball bearing(56) to eliminate the play. Then insert connecting bushing(54) into rapid feed shaft bushing(back) (61).

2. To adjust the clearance between connecting bushing and rapid feed shaft bushing(back)

Fit rapid feed shaft collar(60), electromagnetic clutch(59) and rotor (50) to rapid feed shaft(57). Then fit key (58) firmly into slot in rapid feed shaft(57).

Note: Check and make sure the rear end of rapid feed shaft bushing(back) (61) is flush with the end of bed extension(62).

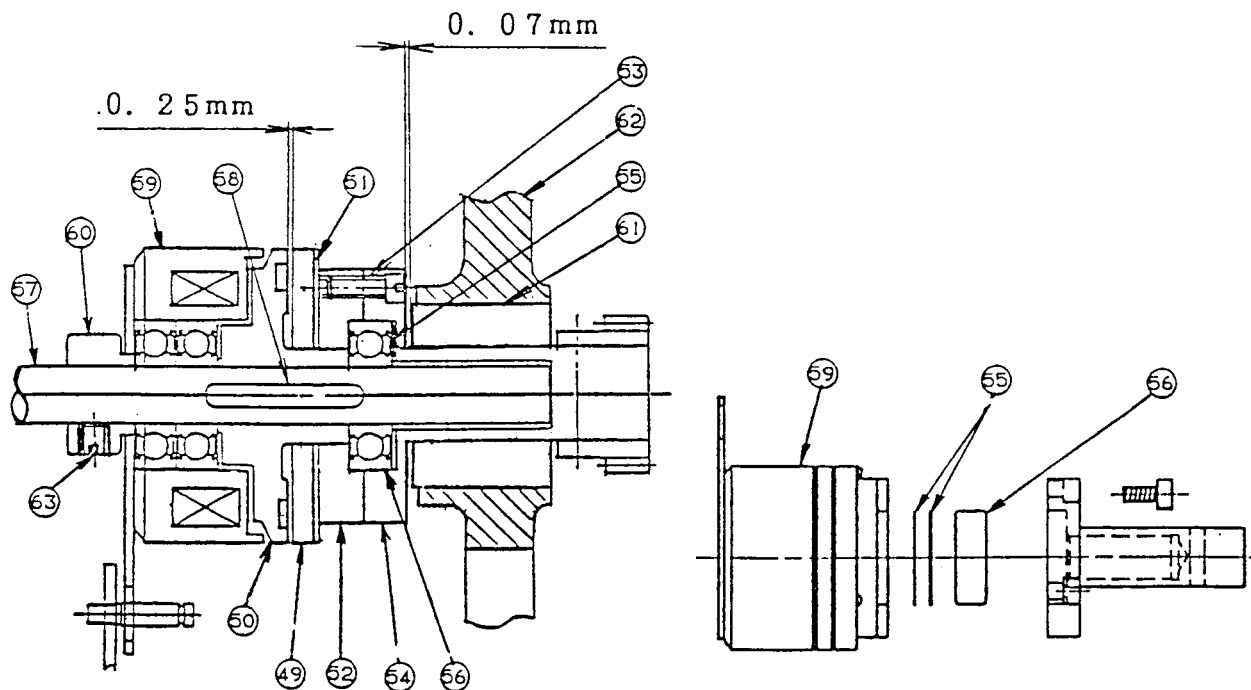


Fig.13

Fig.14

After completing the above, loosen two screws(63) in rapid feed shaft collar(60) and adjust clearance between connecting bushing(54) and rapid feed shaft bushing(back)(61) to 0.07mm. Then check and make sure that axial play of rapid feed shaft(57) does not exceed 0.07mm.

Note 1. Be sure the spacer(55) is located on the right side of the ball bearing(56) as shown in Fig.13.

2. Normally, 0.25mm clearance is provided between rotor(50) and armature(49). To check the clearance, eliminate gap between connecting bushing(54) and rapid feed shaft bushing(back)(61) by pushing the rapid feed shaft (57) to the right. The clutch will wear out in the long run of use therefore if above clearance of 0.25mm increases to over 0.6mm, the spacer(55) provided on the right side of ball bearing(56) should be relocated to the left side of ball bearing as shown in Fig.14.
3. When assembling or adjusting the electromagnetic clutch, every care should be taken not to mar or bend the spring(51)
4. When adjustment has been completed, fit cover over electromagnetic clutch providing 1.0mm(max.) clearance between cover and clutch. Also make sure there is no interference between cover and adjacent parts.

Adjustment of Rapid Feed Brake

1. To adjust the rapid feed brake solenoid plate(left) (Fig.15)

Loosen two bracket screws(74) and four screws(76) in adjusting plate (75) and adjust rapid feed brake solenoid plate(left) (78) so that clearance between rapid feed brake drum(77) on the rapid feed shaft(57) and solenoid plate (78) is 0.8-1.2mm when measured at a point 15 degrees from the top as shown in Fig.15. The 0.8-1.2mm clearance should also be evenly spaced over the brake drum in axial direction.

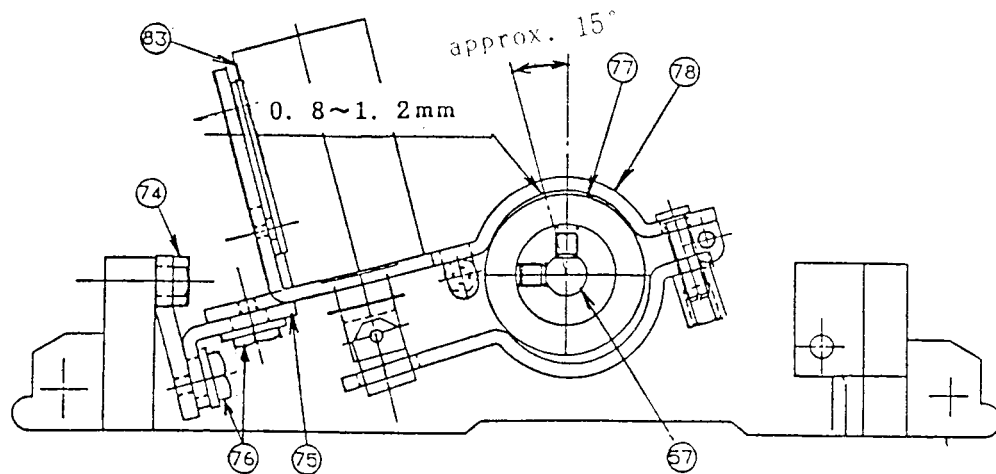


Fig. 15

2. To adjust the rapid feed brake solenoid plate(right)(Fig.16)

Loosen adjusting nut(80) and adjusting screw(81) and adjust screw(81) so that clearance between bottom end of solenoid(83) and E-ring on solenoid plunger is 1.0-1.5mm when brake solenoid plate(82) is pressed against the rapid feed brake drum(77) by pushing the solenoid plunger in direction(D) as shown in Fig.16.

Note 1. Check and make sure that both solenoid plate(left)(78) and solenoid plate(right)(82) are completely free from contact with the brake drum when power for rapid feed solenoid is turned off.

2. The brake drum(77) is made of polyether base urethane therefore thinner or trichloroethylene should never be used for cleaning. If in case oil adheres to the brake area, the parts should be washed with alcohol or benzene.

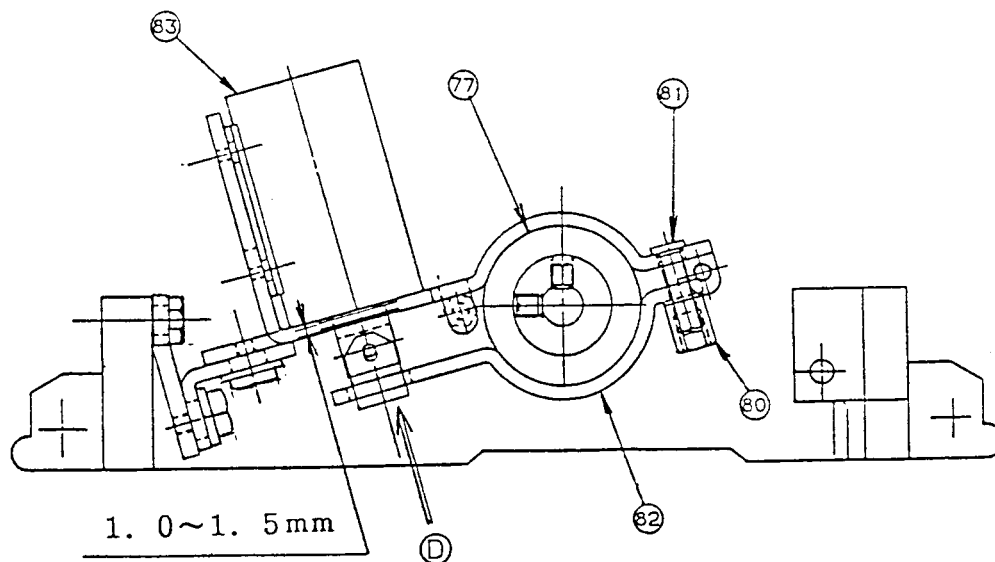


Fig.16

3. To adjust the rapid feed brake shaft oil seal.(Fig.17)

Slide left and right rapid feed brake shaft oil seals(84) against the the outer sides of oil seal supporting plates(85) making sure they are in contact with the supporting plates because any leakage of oil will result in malfunction of the brake system.

Position brake drum(77) on the shaft in alignment with the rapid feed brake solenoid plate(left)(78) and firmly tighten two screws(86).

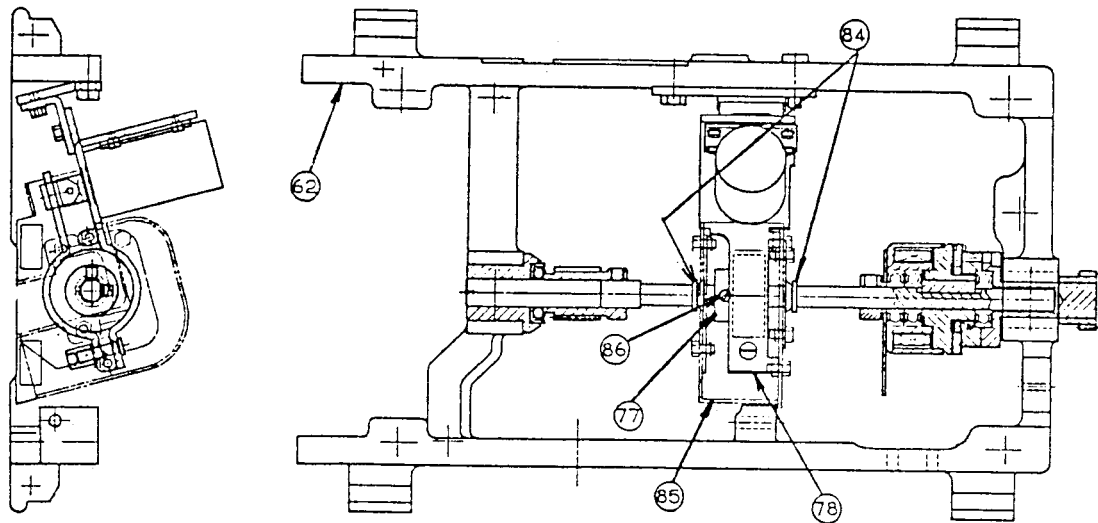


Fig.17

Adjustment of Pattern Wheel Shaft

1. To assemble and adjust the worm wheel.(Fig.18)

Check and make sure the one way clutch(89) is press fitted in the worm wheel(88) with its piece marked end to the right as shown in Fig.18. Then fit worm wheel(88) with one way clutch(89), washer(90) and cutting safety cam(91) to worm wheel shaft(87) and secure in place with three screws (92) after aligning the notch(E) in cutting safety cam (91) with screw hole(F) in worm wheel shaft(87).

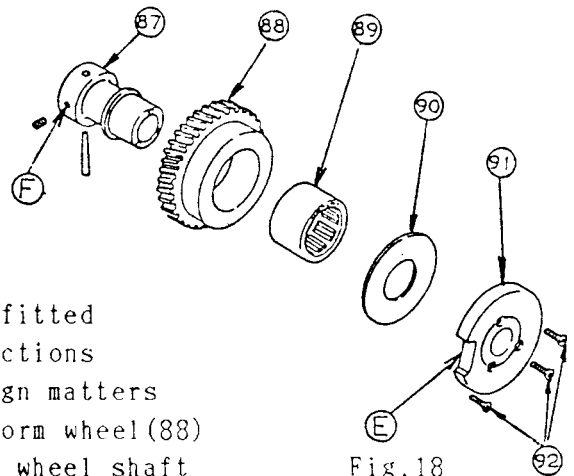


Fig.18

Note:Normally, a No. '0' grease

is applied to the one way clutch fitted in the machine. If clutch malfunctions (slips) due to oil or other foreign matters getting into the clutch, remove worm wheel(88) with one way clutch(89) from worm wheel shaft and wash with cleaning solvent. Remove cleaning solvent with compressed air and apply a little amount of grease to the clutch. Do not use grease other than listed below.

IDEMITSUKOSAN CORONEX NO.'0'
ESSO LITHTAN NO.'0'

2. To adjust setting of cutting safety cam. (Figs.19 and 20)

The cutting safety cam (91) is set in position so that point(J) of cutting safety lever extension will be at point(H) of notch in cutting safety cam (91) when the point of cutting starting lever trip plate(95) reaches point(G) of cutting starting lever trip plate stud(94) on the feed wheel (93).

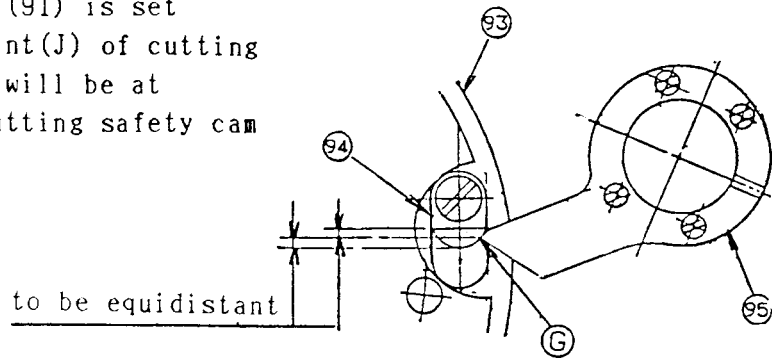


Fig.19

The above setting is performed at the factory using a tapered pin.

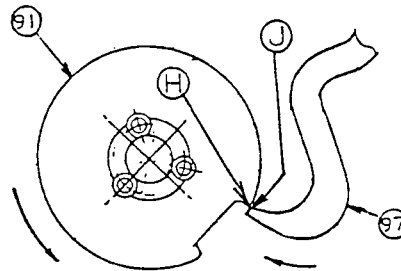


Fig.20

Adjustment of Lever Roller Plate.(Fig.21)

1. Loosen two sensor screws(98) and adjust setting of sensor(101) so that it will be shut off by lever roller plate(99) when lever roller plate shoulder screw (100) is turned counterclockwise.

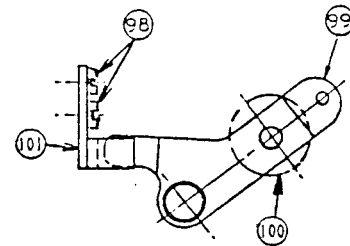


Fig.21

Adjustment of Machine Stop Position. (Figs.22,23,24,25 and 26)

When the machine leaves the factory the torque of pattern wheel shaft (102) is normally adjusted to approximately 60 kg-cm (one full rotation) measured with stop lever link connection 548539 tripped backward. The torque at start of rotation is adjusted to approximately 100 kg-cm by adjusting the feed wheel friction ring on the feed wheel (93). If the pattern wheel shaft torque becomes light, adjust as described above.

The torque is approximately 60 kg-cm when pattern wheel can be rotated with left hand and with a little force. When it can be rotated lightly with left hand holding the pattern wheel with three fingers, the torque is approximately 20 kg-cm.

1. To adjust machine stop position. -299U250/251

Trip stop lever link connection
548539 backward, and with a wrench,
turn pattern wheel clamping nut(104)
clockwise to rotate pattern wheel
shaft(102) until there is
approximately 6.0mm space between
operating lever (intermediate) roller
(105) and opening lever extension(106).
Then loosen two pattern wheel shaft
collar set screws and adjust pattern
wheel shaft collar(107) so that the
pattern wheel shaft collar sensor(108)
will engage in notch(K) in collar(107).

Note:When machine is used over a
lengthy period, the torque of
machine itself will become light
due to repeated application of
oil over the long period. In
such case, adjustment should be
made as instructed in following
item 3.

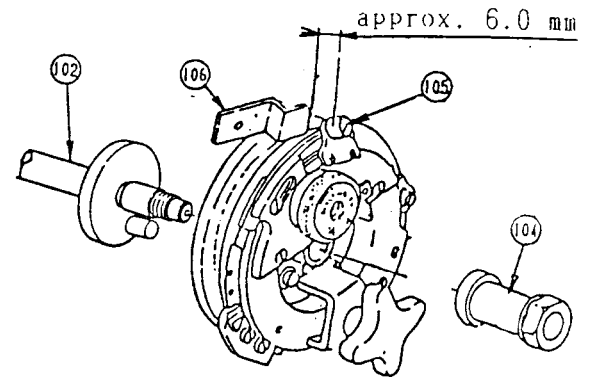


Fig.22

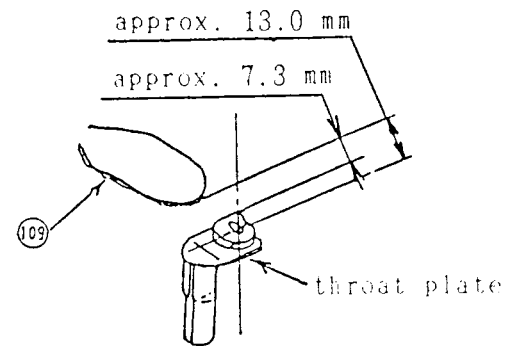


Fig.23

2. To adjust machine stop position. -299U253 series

Trip stop lever link connection
548539 backward, and with a wrench,
turn pattern wheel clamping nut(104)
to rotate pattern wheel shaft(102)
until the distance between right end
of thread and cord cutting blade guard
(109) and centerline of throat plate
is approximately 13.0mm. (or
approximately 7.3mm between right end
of guard and left edge of throat plate)
Then adjust pattern wheel shaft collar
(107) in the same manner as in item 1
above so that pattern wheel shaft
collar sensor(108) will engage in
notch(K) in collar(107).

Note:When machine is used over a
lengthy period, the torque of
machine itself will become light
due to repeated application of
oil over the long period. In
such case, adjustment should be
made as instructed in following
item 3.

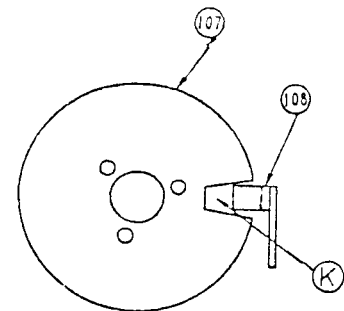


Fig.24

3. To adjust the feed wheel friction ring.

Normally the pattern wheel shaft torque should be adjusted to approximately 60 kg-cm as mentioned in the preceding paragraph.

To adjust the torque, loosen lock nut (103) and turn adjusting screw (111) clockwise to increase the torque and counterclockwise to decrease the torque.

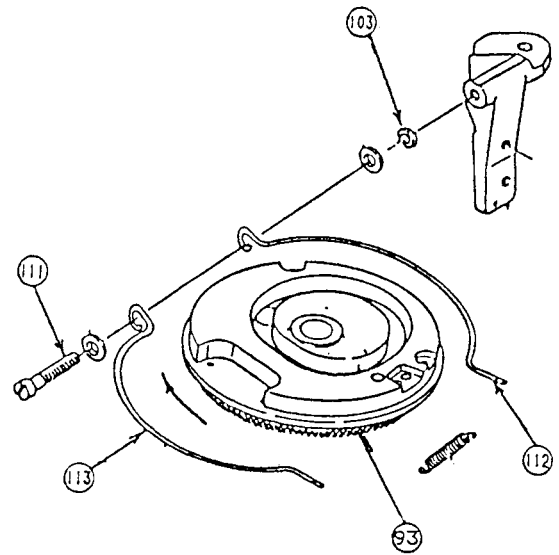


Fig.25

4. To adjust the pattern wheel auxiliary stop lever spring.

As mentioned in items 1 and 2 above, the torque of the machine itself will become light due to repeated application of oil when machine is used for a long period. In such case, remove auxiliary stop lever spring (115) from bracket (114) and turn spring in the direction shown in Fig.26 to increase the spring tension.

Note 1. If the pattern wheel torque becomes light, adjust as instructed in item 3 above.

2. If there is no improvement even when adjusting screw is tightened, it is possible that oil may be adhering to the friction ring sections and the bearing surface on the feed wheel (93). In such case, remove friction ring section (long) (112) and friction ring section (short) (113) from feed wheel (93) and wipe off the oil.

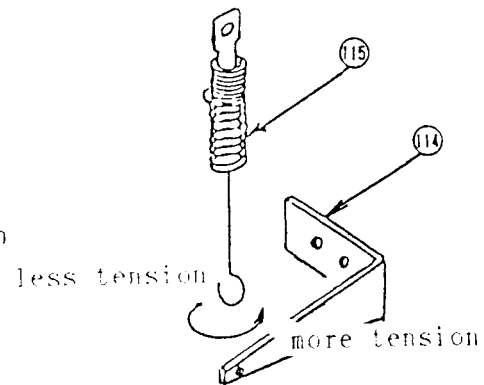


Fig.26

To check the machine stop position after completing the above adjustments items 1 - 4, first turn off the switch for knife in the power supply box, remove both left and right work clamp base, trip stop lever link backward, then turn on power switch and push down the starting lever and check the stop position of one cycle, namely, the machine stop position.

Machine stop position will vary a little when machine has been run in a certain extent. While space between operating lever(intermediate) roller(105) and opening lever extension(106) is within 5.0 - 12.0mm (Fig.22) and distance between right end of thread and cord cutting blade guard(109) and centerline of throat plate is within 12.7 -20.7mm or 7.0 - 12.7mm between right end of guard (109) and left edge of throat plate, the machine is still possible for normal sewing. When variation exceeds the above range, readjust machine stop position as described in preceding paragraphs.

Adjustment of Thread Tension Releaser Mechanism.

Needle thread tension releaser lever arm, needle thread tension releaser lever, needle thread tension releaser shaft operating lever, looper thread tension restoring lever and looper thread tension releaser lever should be set correctly in position so that tension will be applied to the needle and looper threads during sewing and released when machine stops.

1. To adjust the looper thread tension releaser lever and looper thread tension releaser lever stopper. (Figs.27 and 28)

With the center of tension releaser lever lock plunger(112) located almost in the middle of lower inclination(section Y-Y) of the looper thread tension releaser lever(111), push tension releaser lever stopper(113) against the inner wall of bed(machine body) and tighten set screw(114) making sure the looper thread tension releaser pin(115) is not interfering with tension releaser lever(111).

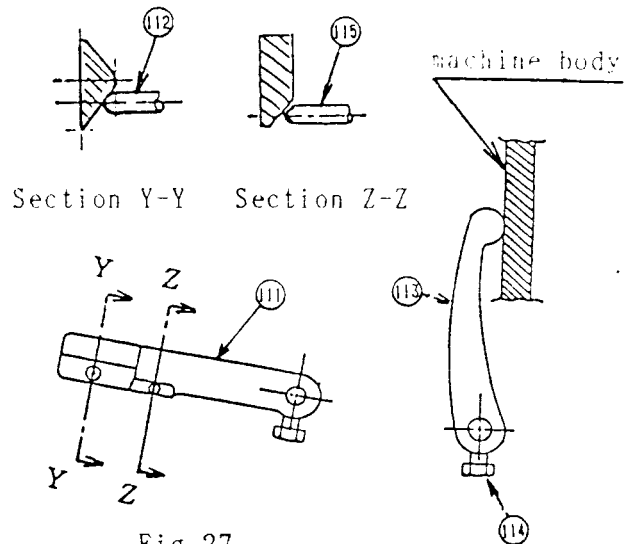


Fig.27

Fig.28

2. To adjust the looper thread tension restoring lever. (Fig.29)

With the machine in above condition, loosen set screw(119) and provide minimum 1.0mm clearance between restoring cam block(117) fastened to hub(116) of bed shaft bevel gear and plate (118).

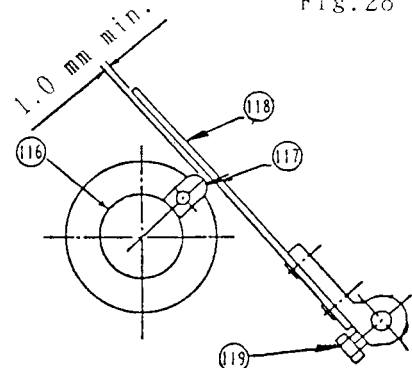


Fig.29

3. To adjust the tension releaser lever. (Figs.30 and 31)

With the center of tension releaser lever lock plunger(112) located almost in the middle of upper inclination of

the looper thread tension releaser lever (111) (Fig.27), that is, when tension on looper thread tension discs are released, trip stop lever link connection 548539 backward, turn hand wheel in the direction indicated by arrow and stop machine just before stop lever interlocking slide(125) engages in the notch in stop cam(120). Then adjust needle thread tension releaser shaft operating lever(123) so that needle thread tension releaser lever arm(122) is in contact with the point of needle thread tension releaser lever adjustable screw(121).

Note: The needle thread tension releaser shaft operating lever(123) should be adjusted so that the amount of its up and down movement is the same. To adjust, loosen nut(124) and turn adjustable screw(121) as required.

When adjustment has been completed, turn hand wheel to engage stop lever interlocking slide(125) in the notch in stop cam(120).

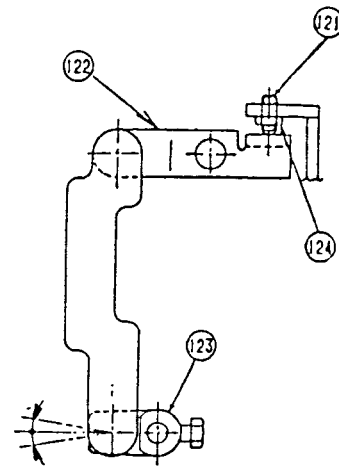


Fig.30

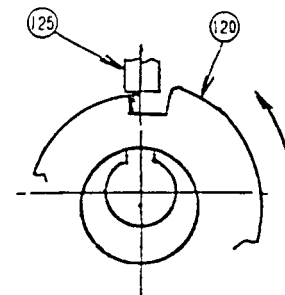


Fig.31

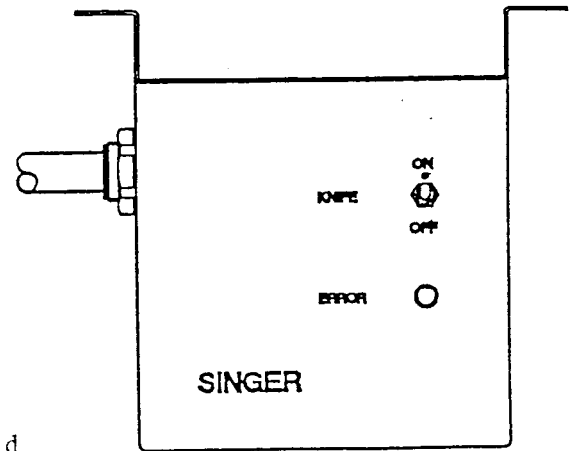
4. To adjust the needle thread tension releaser lever(548350) setting.

When machine is in stop position, that is, when tension on looper thread tension discs are released, adjust setting of needle thread tension releaser lever so that tension on needle thread tension discs is also released. When above adjustment has been completed, run machine to check whether the releaser mechanism is functioning properly.

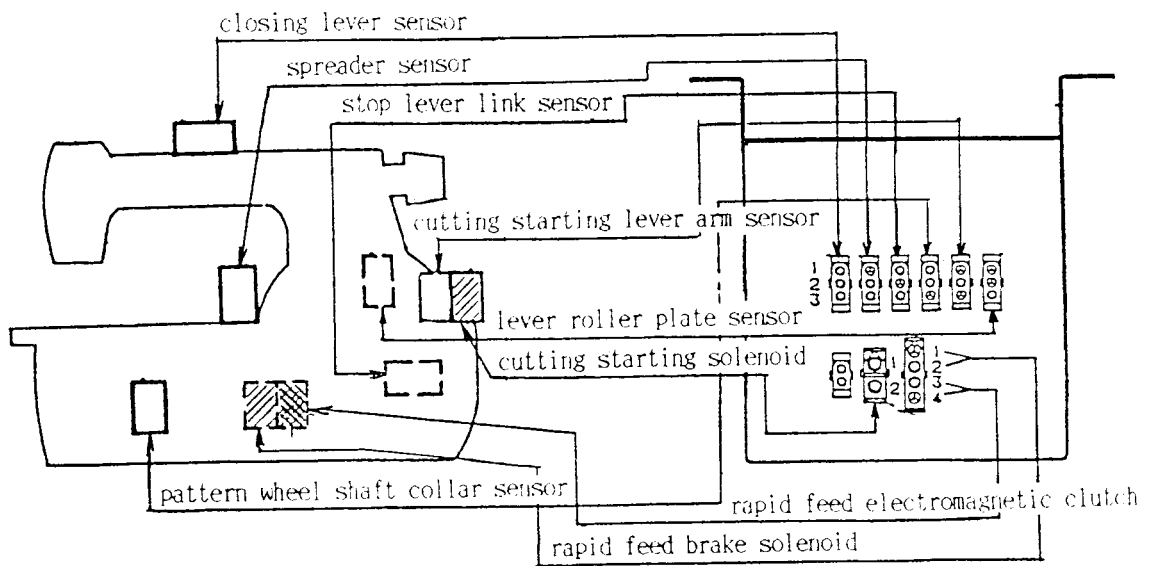
Inspection of Power Supply Box Connections

1. Schematics for power supply box and location of sensors and solenoids.

- 1) Connect cords to connectors on power supply box.
- 2) Check function of sensor, buttonhole cutting starting solenoid, rapid feed brake solenoid and rapid feed electromagnetic clutch as follows;
 - *Remove belt on motor and driving pulley.
 - *Place machine in stop position. (See page 11 to check whether machine is in stop position.)
 - *Turn on power switch.
 - *Measure voltage between white(+) and black(-) lead wires of the three lead wires red, white and black.



Front Panel



Machine Body

Fig.32

Back Panel

If normal, the voltage should be as follows.

- When sensor is shut off (DC) 5V
- When sensor is not shut off (DC) 0 - 1.2V

Note: When machine is in stop position, the spreader sensor(S1) is shut off.

*Check resistance of solenoids. If normal, the resistance should be as follows.

- Buttonhole cutting starting solenoid $10.3\Omega \pm 10\%$
- Rapid feed brake solenoid $14.1\Omega \pm 10\%$
- Rapid feed electromagnetic clutch solenoid $94.0\Omega \pm 10\%$

Failures and Corrective Measures.

1. If failure occurs, check the following points.

*Are the power supply source voltage and wiring normal?

*Is each connector connected correctly?

*Is the fuse intact?

*Does voltage conversion connector in the power supply box conform to power supply source voltage?

*Is the belt loose?

2. To check whether the machine will function satisfactorily after taking corrective actions making reference to the check list on following pages, be sure to place machine in stop position before turning on the power switch.

Note: If the machine does not run even when power switch is turned on, do not leave the switch on for many hours because it may cause the electromagnetic clutch etc. to seize.

Check List

I. When error lamp lights up

Problem	Possible Cause	Corrective Actions
1. When power switch is turned on, error lamp lights up even when machine has not been started.	<ol style="list-style-type: none"> 1. Improperly set stop lever link sensor shut off plate. 2. Failure of stop lever link sensor(S2) or work clamp closing lever sensor. 	<p>Adjust setting of stop lever link sensor shut off plate. (Page 5)</p> <p>Failure of stop lever link sensor(S2) if buzzer sounds and error lamp lights up when power switch is turned on after disconnecting the closing lever sensor cord(S0) from the connector in power supply box, if not, failure of closing lever sensor(S0) if error lamp lights up when closing lever sensor cord(S0) is connected to the connector in power supply box.</p> <p>Replace sensor. (Pages 1, 5 and 15)</p> <p>Adjust setting of cutting starting solenoid. (Page 4)</p> <p>Adjust cutting starting lever restoring screw stud. (Page 4)</p>
2. Cutting knife fails to function in cut-before or cut-after sewing.	<ol style="list-style-type: none"> 1. Improperly set cutting starting solenoid. 2. Insufficient movement of cutting starting lever restoring screw stud or interference with cutting driving wheel due to excessive movement. 3. Cutting starting lever functions heavily. 4. Cutting starting lever does not move back due to function of cutting safety mechanism. 5. Failure of cutting starting solenoid. 	<p>Adjust to make lever function lightly.</p> <p>Check machine stop position. When machine stop position is out of correct setting, the safety device functions and will not permit the cutting starting lever arm to move back. (Pages 10 and 11)</p> <p>Check resistance of cutting starting solenoid. (Should be $10.3\Omega \pm 10\%$) If defective, replace solenoid. (Page 15)</p> <p>Install belt.</p> <p>Adjust setting of cutting starting lever arm sensor shut off plate. (Page 4)</p> <p>Replace sensor(S4). (Page 4)</p>
3. First rapid feed fails to function, or rapid feed functions only a short time and the machine stops.	<ol style="list-style-type: none"> 1. Machine drive belt not installed. 2. Shut off plate does not shut off the cutting starting lever arm sensor(S4). (Cut-before) 3. Failure of cutting starting lever arm sensor(S4). 4. Failure of pattern wheel shaft sensor(S3). 5. Failure of rapid feed electromagnetic clutch. 6. Slippage of rapid feed electromagnetic clutch. 	<p>Replace sensor(S3). (Page 11)</p> <p>Check clearance and function of electromagnetic clutch. Replace if necessary.</p> <p>Adjust clearance of clutch.</p> <p>Adjust setting of cutting starting lever arm sensor shut off plate. (Page 4)</p>
4. Error lamp lights up at completion of a cycle.	<ol style="list-style-type: none"> 1. Improperly adjusted rapid feed brake. 2. Failure of rapid feed brake solenoid. 3. Improperly set cutting starting lever arm sensor shut off plate. (Cut-after) 	<p>Adjust clearance of rapid feed brake. (Pages 7 and 8)</p> <p>Check resistance of rapid feed brake solenoid, (Normal resistance value $14.1\Omega \pm 10\%$) Replace solenoid if necessary. (Pages 7, 8 and 15)</p> <p>Adjust setting of cutting starting lever arm sensor shut off plate. (Page 4)</p>

Problem	Possible Cause	Corrective Actions
	4. Failure of cutting starting lever arm sensor(S4).	Replace sensor(S4).
	5. Improperly adjusted feed wheel friction ring.	Adjust feed wheel friction ring. (Pages 10, 11 and 12)

2. When error lamp does not light up.

Problem	Possible Cause	Corrective Actions
1. Can not start machine after clamping the fabric on cut-before machine and after spreading the fabric on cut-after machine.	1. Improperly set work clamp closing lever sensor shut off plate. (Sensor not shut off) 2. Failure of work clamp closing lever sensor(S0)	Adjust sensor shut off plate. (Page 1) Replace sensor(S0). (Page 1)
2. Cutting knife does not function but completes one cycle on both cut-before and cut-after machines.	1. Knife switch in power supply box set at 'off'. 2. Improperly set cutting starting solenoid. (Solenoid does not pull back the starting lever arm even when energized) 3. Function of cutting starting lever heavy. 4. Cutting safety device in effect. 5. Defective cutting starting solenoid.	Turn switch on. Adjust cutting starting solenoid. (Page 4) Adjust to make lever function lightly. Bring machine to stop position and check that safety mechanism is released. Check resistance of cutting starting solenoid. (Normal resistance value $10.3\Omega \pm 10\%$) Replace solenoid if necessary. (Pages 4 and 15)
3. Machine does not go into first rapid feed after the knife functions on cut-before machine and after fabric is clamped and spread on cut-after machine.	1. Failure of work clamp spreader sensor(S1). 2. Improperly set cutting starting lever arm sensor shut off plate. 3. Failure of cutting starting lever arm sensor(S4).	Replace spreader sensor(S1). (Page 2) Adjust setting of cutting starting lever arm sensor shut off plate. (Page 4) Replace sensor(S4). (Page 4)
4. Machine goes into first rapid feed abruptly when in correct stop position. (See page 11 for correct machine stop position)	1. Failure of pattern wheel shaft sensor(S3).	Replace sensor(S3).
5. Can not convert to cut-before or to cut-after.	1. Failure of lever roller switching plate sensor(S5).	Replace sensor(S5). (Pages 10 and 15)
6. Goes into rapid feed simultaneously with sewing.	1. Failure of stop lever link sensor(S2).	Replace sensor(S2).

<p>0. can not convert to cut-before or to cut-after.</p> <p>6. Goes into rapid feed simultaneously with sewing.</p>	<p>1. Failure of lever roller switching plate sensor(S5).</p> <p>1. Failure of stop lever link sensor(S2).</p>	<p>Replace sensor(S5). (Pages 10 and 15)</p> <p>Replace sensor(S2).</p>
<p>3. Mechanical failure</p>		
<p>Problem</p>	<p>Possible Cause</p>	<p>Corrective Actions</p>
<p>1. Rapid feed stops in the middle of its function.</p>	<p>1. Heavy pattern wheel shaft torque.</p> <p>2. Slippage of one way clutch press fitted in the rapid feed worm wheel.</p>	<p>Adjust feed wheel friction ring or pattern wheel shaft auxiliary stop lever spring. (Page 12)</p> <p>Disassemble and clean with naphtha. Remove naphtha with compressed air, apply a little amount of grease and reassemble. (Page 9)</p>
<p>2. Machine stops during sewing.</p>	<p>3. Improperly adjusted rapid feed brake.</p> <p>1. Improperly adjusted rapid feed brake.</p> <p>Solenoid plate(left) or (right) interfering with brake drum.</p>	<p>Adjust rapid feed brake. (Pages 7 and 8)</p> <p>Adjust rapid feed brake. (Pages 7 and 8)</p>
<p>3. Skip stitching caused by bent needle.</p>	<p>1. Slippage of driving wheel clutch. Clutch is released before the interlocking slide engages in the notch in clutch stud 548130.</p>	<p>Replace clutch stud with same size part or select suitable size part corresponding to wearing condition of other related parts.</p>
<p>4. Thread tension discs are not released when machine stops.</p>	<p>1. Slippage of driving wheel clutch. Clutch is released before the interlocking slide engages in the notch in clutch stud 548130.</p> <p>2. Improperly adjusted tension releaser mechanism.</p>	<p>Replace clutch stud with same size part or select suitable size part corresponding to wearing condition of other related parts.</p> <p>Adjust tension releaser mechanism. (Pages 13 and 14)</p>
<p>5. Work clamp base does not spread.</p>	<p>1. Improperly adjusted work clamp spreader lever adjusting plate.</p> <p>2. Amount of spread of left and right work clamp base adjusted to '0' mm.</p>	<p>Adjust spreader mechanism. (Pages 1 and 2)</p> <p>Adjust left and right work clamp base with adjusting screw 545374 to spread equally. (Both left and right spread 0.8mm)</p> <p>Replace spring.</p>
<p>6. Work clamp base does not close.</p>	<p>3. Breakage of work clamp spreader lever operating pawl spring.</p> <p>4. Improperly adjusted work clamp spreader lever operating plate.</p> <p>1. Improperly adjusted cutting starting lever extension</p> <p>2. Improperly adjusted work clamp spreader releaser lever.</p>	<p>Adjust spreader lever operating plate. (Pages 1 and 2)</p> <p>Adjust cutting starting lever extension. (Page 3)</p> <p>Adjust spreader releaser lever. (Page 3)</p>
<p>7. Cutting lever does not return to its rest position after cutting knife functions.</p>	<p>1. Buttonhole cutting pressure wedge 548082 improperly adjusted in fore-and-aft direction. (Cutting lever does not return to its rest position because of excess pressure of knife)</p>	<p>Adjust cutting wedge 548082 toward rear of machine with adjusting screw 545251.</p>