

ENGLISH

F-1S
INSTRUCTION MANUAL
(Mechanical)

Original Language:Chinese

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SAFETY PRECAUTION

Please read this manual carefully also with related manual for the machine head before use. For perfect operation and safety, installing and operating this product by trained personal is required. When install and operate HVP-70 MINI SERVO MOTOR. precaution must betaken as the following. This product is designed for specify sewing machine and must not be used for other purposes.

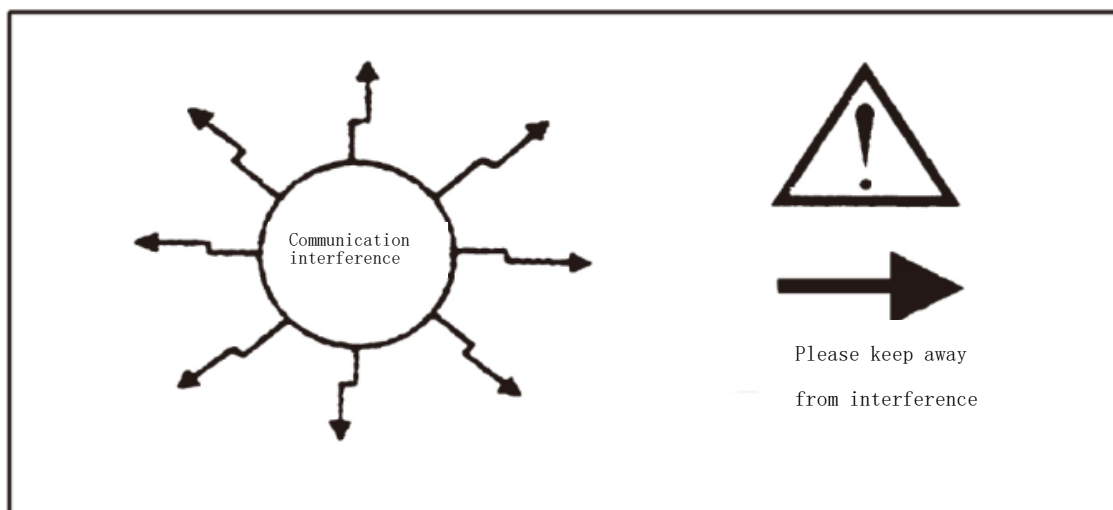
1-1. Work Environment

(1)Power voltage:

Only use Power Voltage indicated on the name plate of the HVP-70+10% ranges.

(2) Electromagnetic pulse interference:

To avoid the false operate, please keep the product away from the high electromagnetic machinery or electro generator.



(3) Temperature:

- Please don't operate in room temperature is above 45°C or under 5°C
- Avoid operating in direct sun light or outdoors area.
- Avoid operating near the heater.

- d. Avoid operating in the area which humidity is 30% or less and 95% or more, also stay away from dew area.

(4) Atmosphere:

- a. Avoid operating in dusty area, and stay away from corrosive material.
- b. Avoid operating in evaporate or combustible gas area.

1-2. Safety In Installation

(1) Motor and control box:

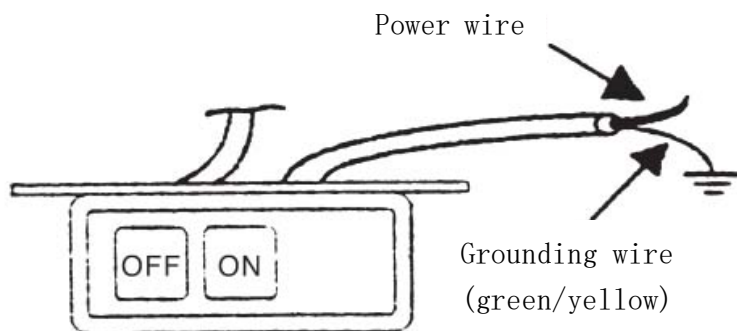
Follow the instruction in this manual for correct installation.

(2) Power cord:

- a. Avoid power cord being applied by heavy objects of excessive force, or over bend.
- b. Power cord must not set to be near the handwheel. keep 3cm spare or above.
- c. Check the outlets voltage before plugging the cord, make sure it match the voltage shown on the name plate of the HVP-70 in +10% ranges.

(3) Grounding:

- a. To avoid the static interference and current leakage all grounding must done.
- b. Use the correct connector and extension wire when connecting ground wire to Earth and secure it tightly.



The grounding wire (green/yellow) must be well grounded. If it doesn't be grounded, leakage current will cause discomfort or injury to human body.

1-3. Safety In Operating

- (1) When turn on the machine in the first time, use low speed to operate and check the correct rotation direction.
- (2) During machine operation, don't touch any moving parts.
- (3) Please don't operate the machine under to take out the Belt Cover and another safety advice
- (4) When you operate the sewing machine, the "Eye Guide" must be moved to the correctly position which in the front of needle holder.


1-4. Safety in Maintenance and Repairs


Power must be turned off first when:

- (1) Uninstall the motor to the control box, or plug and unplug any connector.
- (2) Turn off the power and wait 10 minutes before opening box cover.
- (3) Raising the machine arms or changing needle, or threading needle. (show as above)
- (4) Repairing or doing any mechanical adjustment.
- (5) Machines rest.



1-5. Danger and Caution Signs

(1)  Risks that may cause personal injury or risk to the machine are
Marked with this symbol in the instruction manual.

(2)  This symbol indicates electrical risks and warnings

OPERATION GUIDE

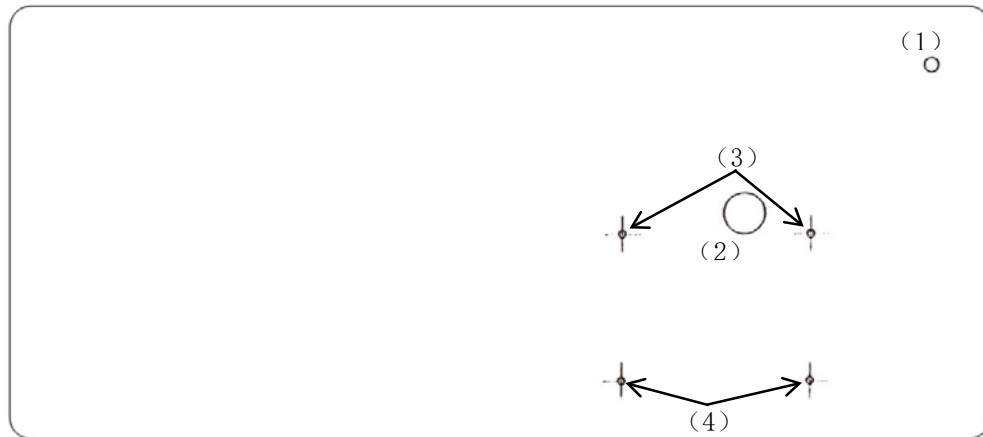
A. INSTALLATION

1. Before installing machine, please refer to Table Cut-Out Drawing To cut the table out in correctly
2. The table thickness is 40mm.
3. Please refer to (Fig.1) and the Remark1&2 for installing the "Directly Driving Type Mini-Servo Motor" machine head and table.
4. Please refer to the Installation Schematic Drawing (Fig.2) for installing the "Directly Driving Type Mini-Servo Motor" machine head. foot stand. control box and accessories.

Fig.1

The Installation of Mini-Servo Motor Machine Head and Table

(1) The Table Front View



1.wire rack hole

2. Trunk hole (small motor connected to the computer box) (Ø50mm)

3.To fix the hole position of the machine (Ø7.5mm), you need to use the screw set as shown in the figure (a), a total of two sets

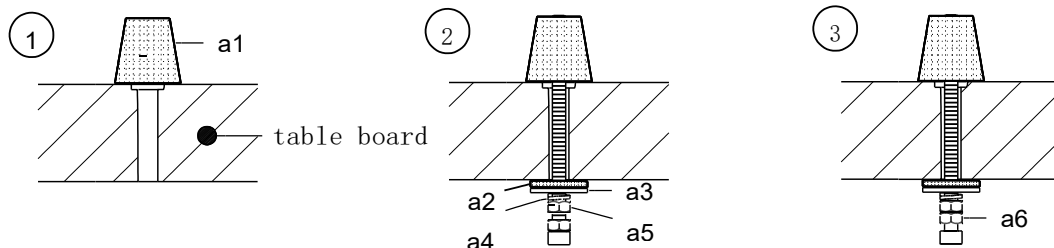
4.To fix the hole position of the machine table (Ø7.5mm), you need to use the screw set as shown in figure (b), a total of two sets

(2)Description of screw types:

(a)	(b)
a1.Anti-vibration rubber	b1.Anti-vibration rubber
a2.Rubber gasket	b2.stud (long)
a3.Gasket (large)	b3.Gasket (small)
a4.spring washer	b4.spring washer
a5.Nut M6	b5.Nut M6
a6.Nut M6	
a7.screw (long)	

(3)Screw Assembly Instructions:

(a)Screw installation steps :



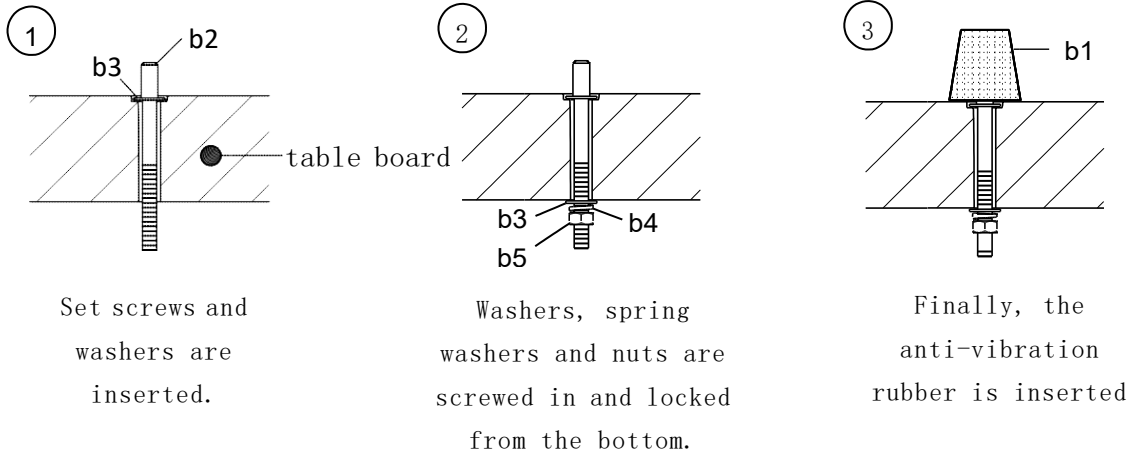
Align the anti-vibration rubber holes with the table board holes first

Screw the fixed oil pan screw from bottom to top to the top, and then use the fine-tuning nut to turn up to touch the bottom of the table.

(☆Attention! The rubber gasket is slightly clamped, and the flat gasket can still rotate)

After determining the position of the fine-tuning nut, fix it so that the anti-loosening nut can be locked.

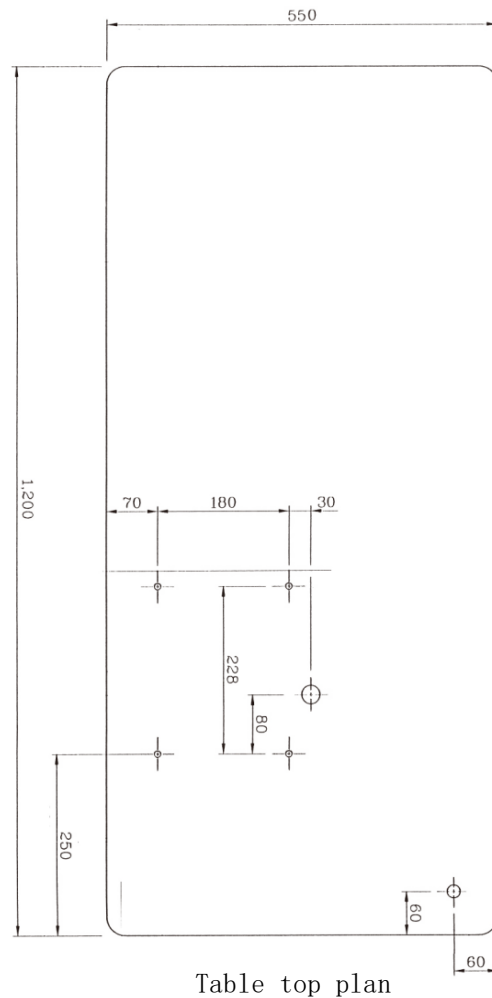
(b)Screw installation steps :



Remark:

1. Please turn the Fixing Screw to the top. Then, the Micro Adjust Nut turn to the Flat Washer and touch the Rubber Washer (During the time, The Rubber Washer has been clipped in lightly. The Flat Washer still could move) Finally The Checking Nut lock to The Micro Adjust Nut.
2. The 4 Fixing Screws (or, Micro Adjust Nut) must be fixed the machine head in even which to avoid the noise of Table Resonance.

Fig. 2:



Semi-submerged platform installation method

(1)Description of the location of each department:

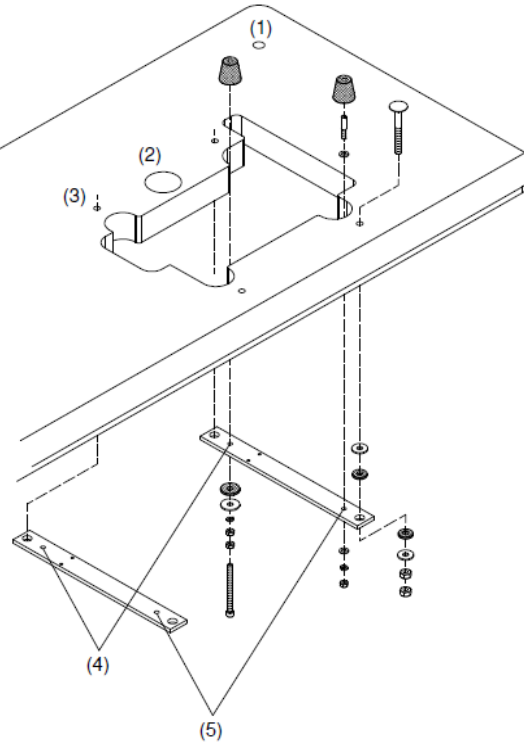
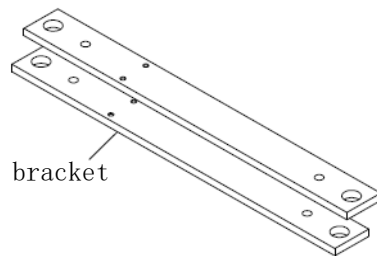
1.wire rack hole.

2.Trunk hole (small motor connected to the computer box) (Ø50mm).

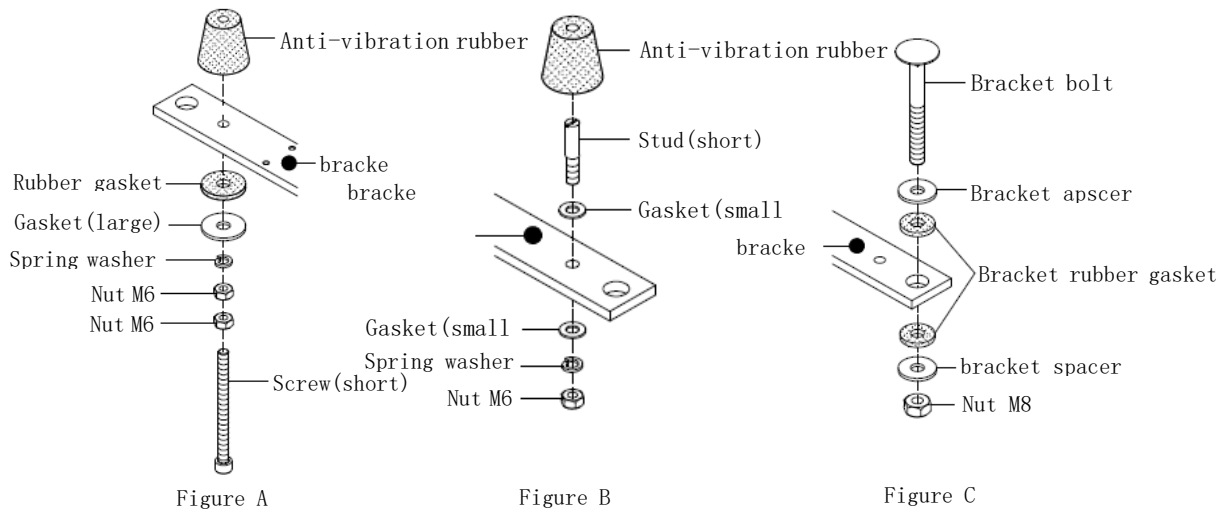
3.Bracket fixing hole *4, need to use screws to fix as shown in (C).

3.To fix the hole position of the machine (Ø7.5mm), you need to use the screw set as shown in the figure (a), a total of two sets.

4.To fix the hole position of the machine table (Ø7.5mm), you need to use the screw set as shown in figure (b), a total of two sets.



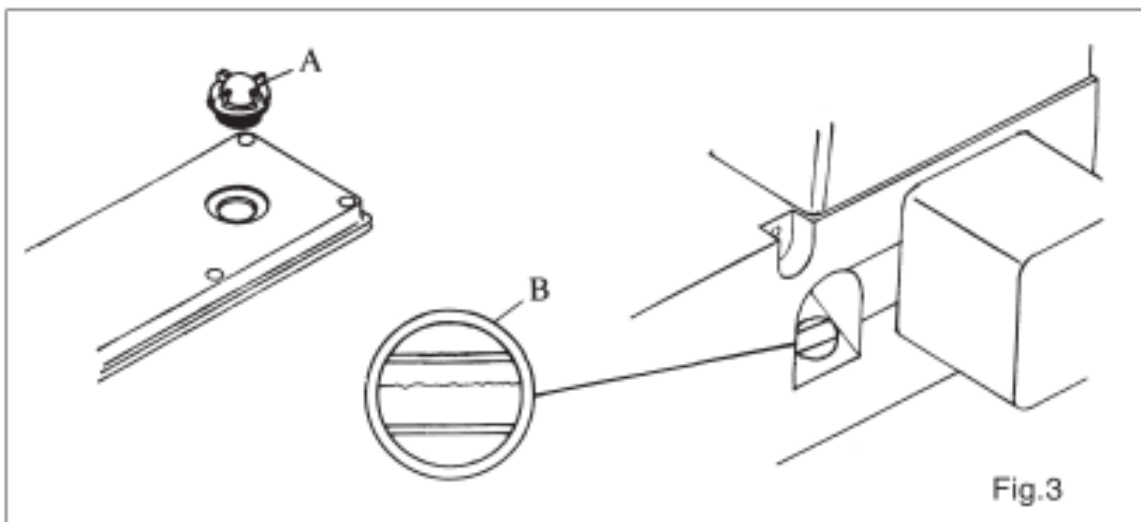
(2)Screw Assembly Instructions:



[illegible]

B. LUBRICATION OIL

1. Please use MOBIL#26 or it's equivalent
2. Before operating the new machine, to remove Oil Sight Window(A) and fill the oil slowly until the oil level reaches between lines H and L of Oil Sight Gauge(B). (Fig. 3)
3. When you begin operating the machine in everyday, please check whether all the lubricating systems at normal condition. If oil level is lower than L of Oil Sight Gauge, please refill oil

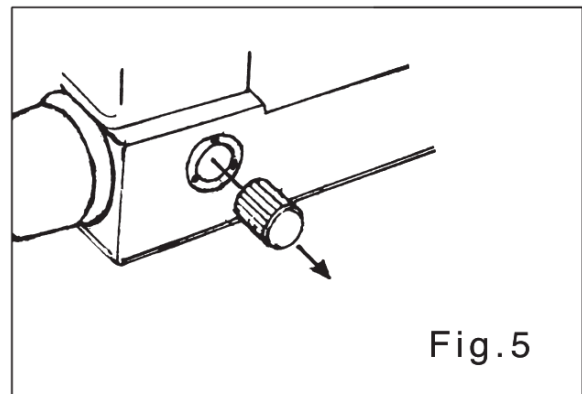
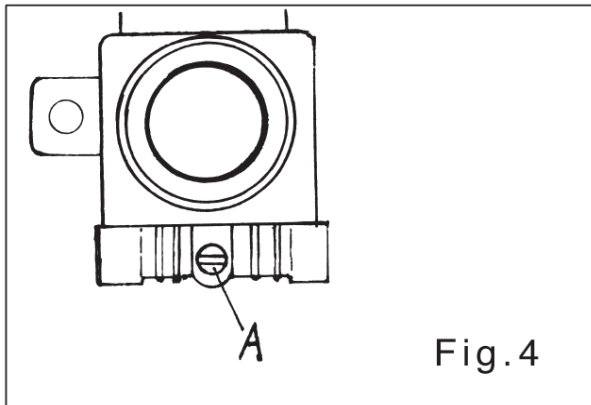


C. OIL CHANGE

1. Remove screw (A) and drain all the oil from the tank. After draining, tighten screw (a) without fail. Please refer to B-2 for replenishing new oil. (Fig. 4)
2. For the long life of machine, please change lubrication oil completely after one month of initial operation. After first time, to change lubrication oil every six months per time.

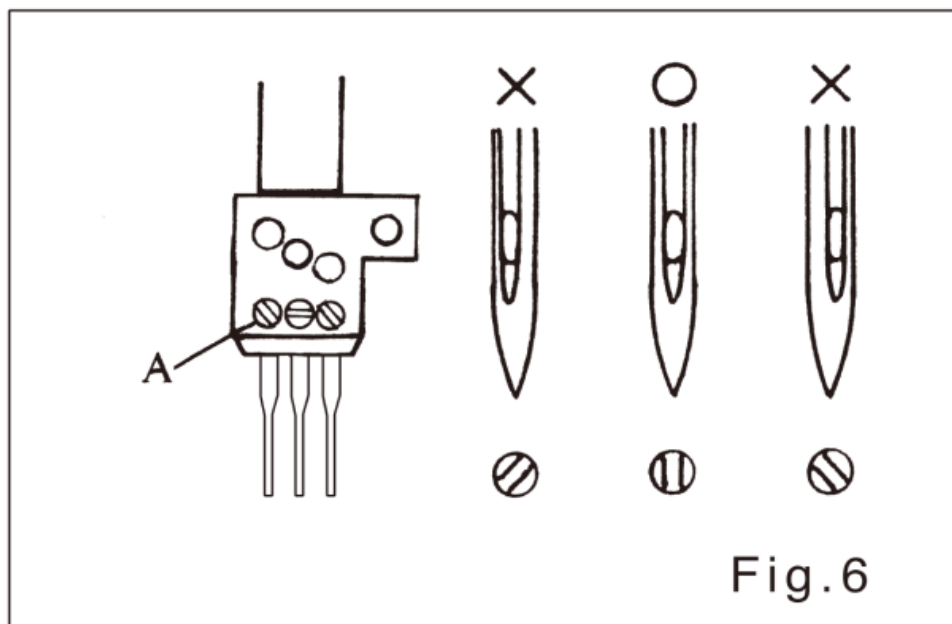
D. REPLACING OIL FILTER

This machine is equipped with an Oil Filter, to change the Oil Filter after one month of initial operation. After that, please change Oil Filter every six months. (Fig. 5)



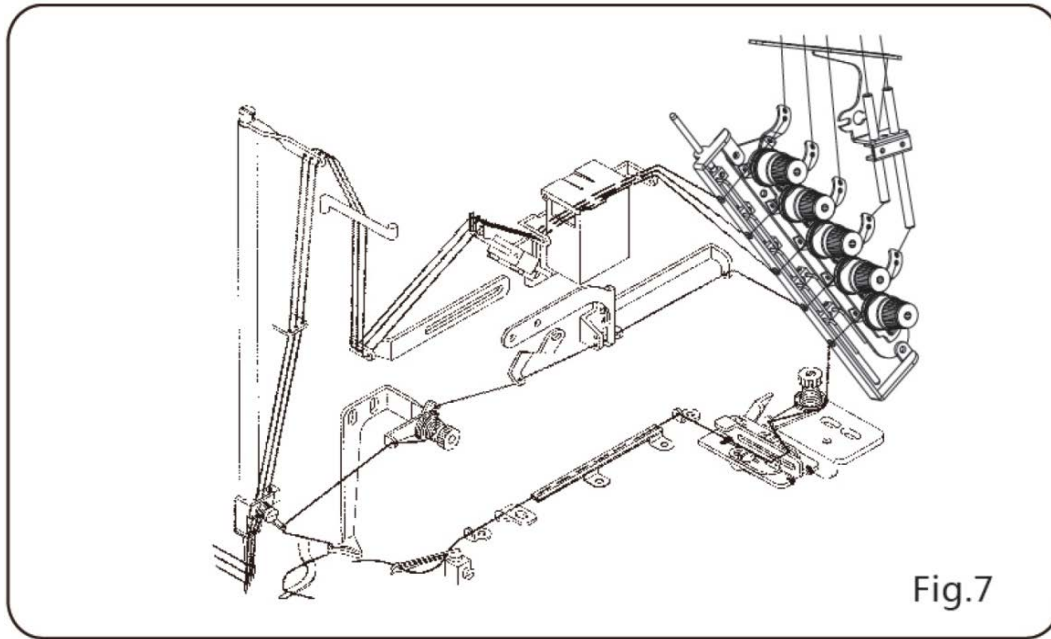
E. HOW TO REPLACE THE NEEDLES

1. Please use UY128GAS #11 of Organ's needle or its equivalent.
2. Loosen screw (A), then, pull out the used needles. Insert the new needles into the holder holes as far as they can go, and let the long groove of the needle face you. (Fig. 6)
3. Fasten screw (A).



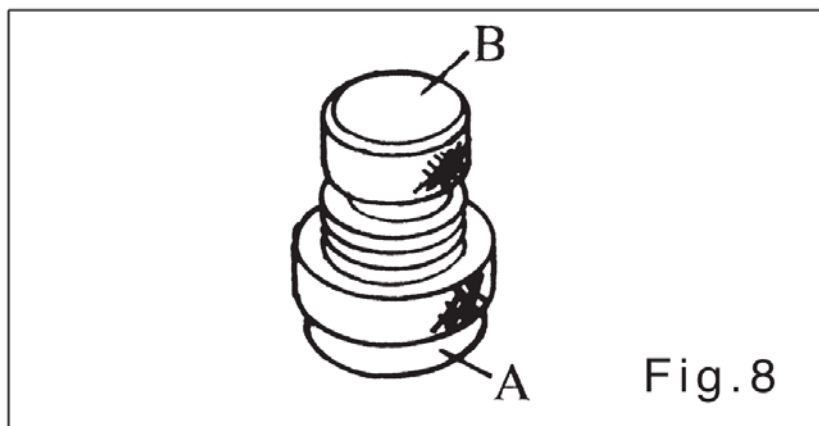
F. THREADING

1. Threading should be made correctly. Refer to the illustration. (Fig. 7) The wrong threading may cause thread breaking, skipping stitch or puckering.



G. ADJUSTING THE PRESSURE OF PRESSER FOOT

1. Pressure of Presser Foot should be as weak as possible so that cloth can be sewed and fed smoothly.
2. To increase the pressure of Presser Foot, to turn Adjusting Screw(B) clockwise after loosening Lock Nut(A) and to decrease the pressure turn Screw(B) counterclockwise. (Fig. 8)



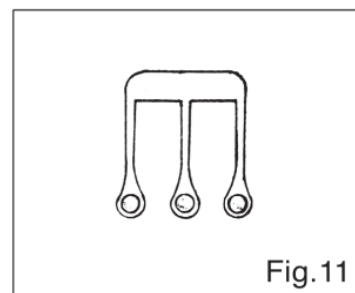
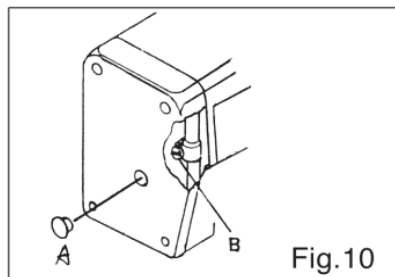
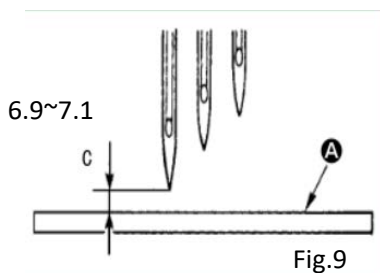
ADJUSTMENT GUIDE

A. THE HEIGHT OF NEEDLE BAR

1. Please lift the Needle Bar to the highest position. During this time, the standard height between the longest right needle point and Needle Plate are 6.9–7.1 mm. (Fig. 9)
2. If you would like to adjust the height of Needle Bar, please remove the rubber plug of front cover and loose the screw(B) on Needle Bar Rod(A). Adjust the Needle Bar up or down to require height and fix the screw. (Fig. 10)

Remarks:

- (1) Be sure insert the needle into the Needle Holder as far as it can go.
- (2) After the Needle Bar adjustment, please make sure that every needle are passed through the center of the needle hole on the Needle Plate. Beside, the three needles must be in parallel and the gap must be even. (Fig. 11)

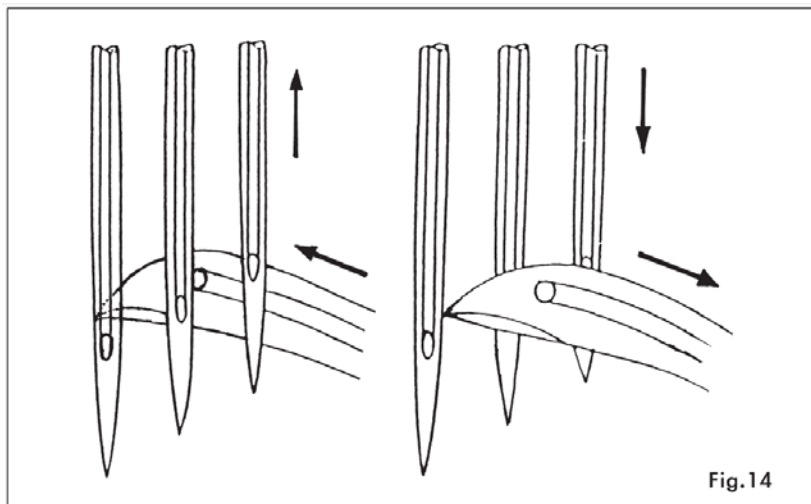
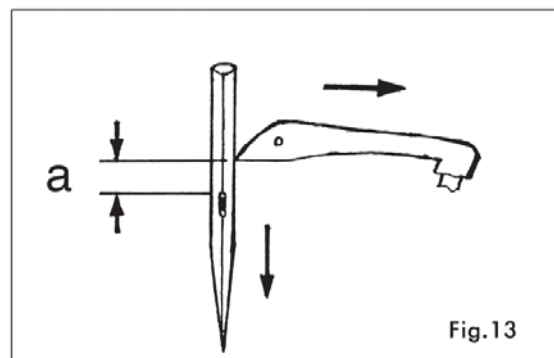
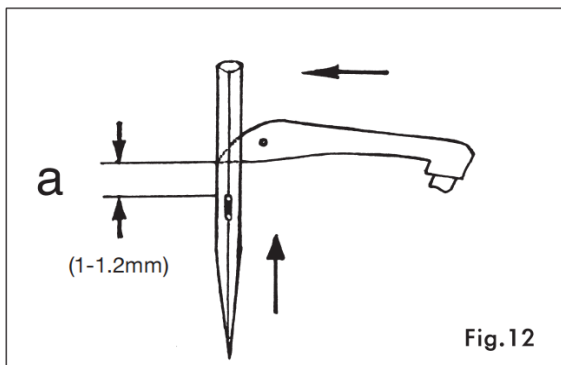


B. THE TIMING OF NEEDLE AND LOOPER

When the Looper move to left from right dead point to the left side of left needle the distance (a) between the tip of looper and needle hole is same as the Looper move to right from the left dead point to the right side of left needle. This timing is best one. (Fig.12,13,14)

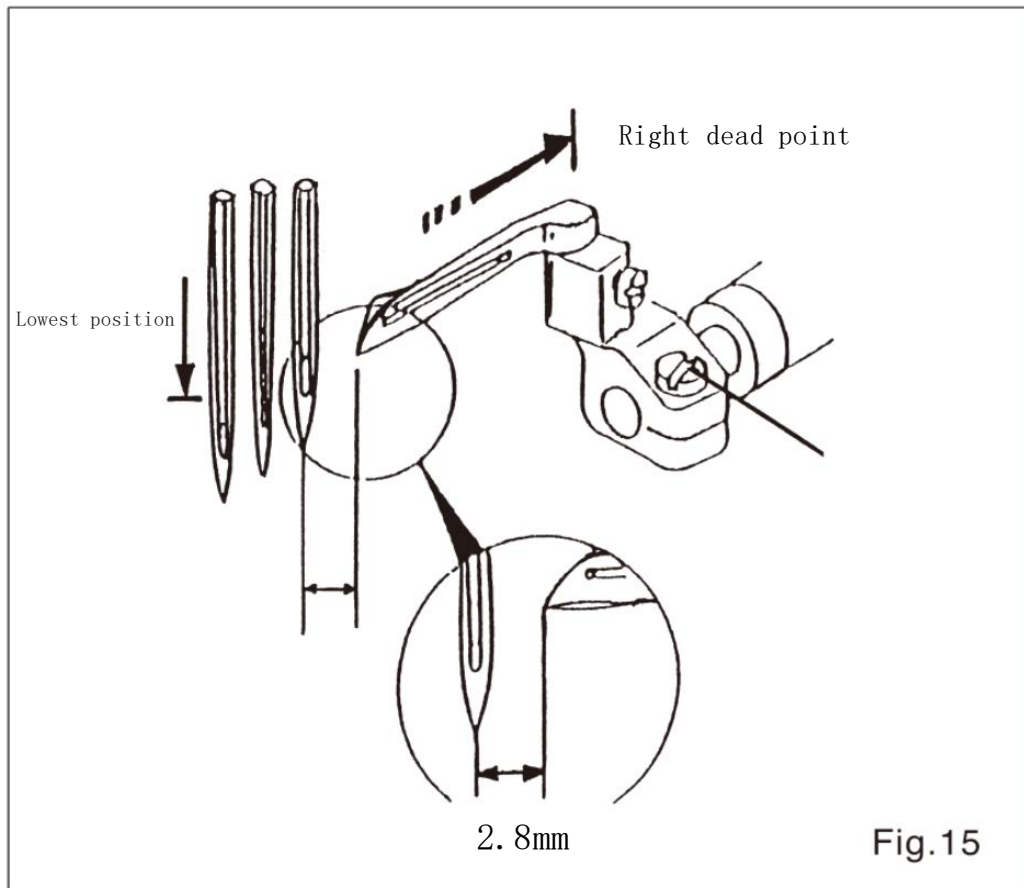
Remarks:

The clearance between the needle hole of left needle and the tip of looper is 1~1.2mm(a).



C. THE POSITION OF NEEDLE AND LOOPER

1. When the Needle Bar lower to the lowest position and Looper reverse to right dead point the distance between the center of right needle to the tip of Looper is 2.8~3.0mm.
2. Loosen the screw (F) on the Looper Holder to adjust the correctly distance of Looper and right needle. (Fig. 15)



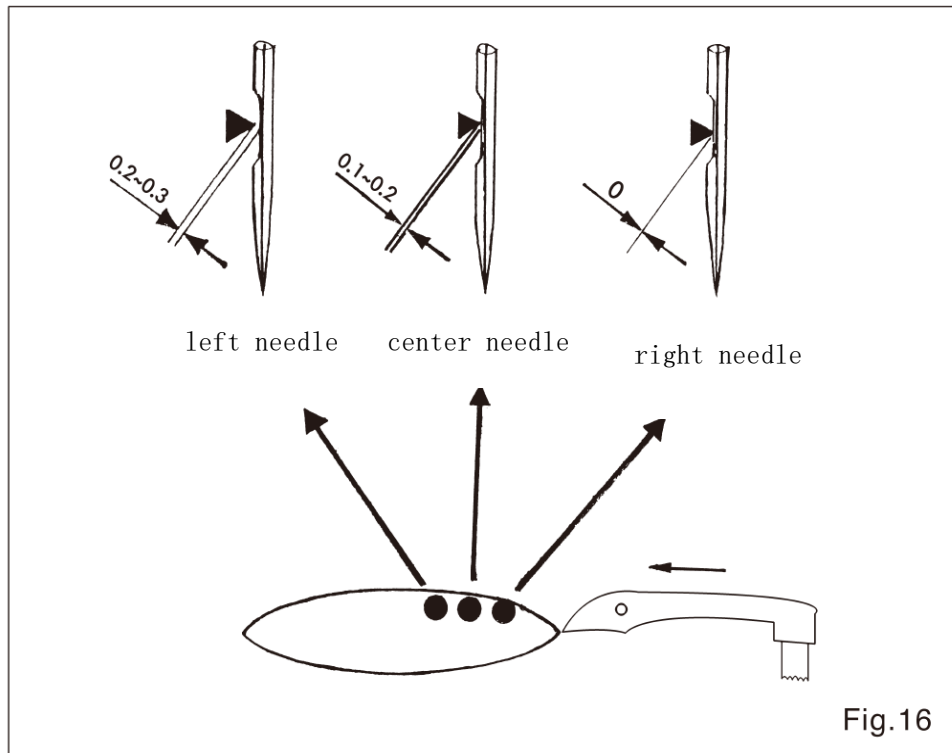
D. THE TIMING OF NEEDLE AND LOOPER

When Looper moves to the left and meet the right needle, the clearance is 0mm. When the Looper pass the center needle, the clearance is 0.1~0.2mm.

When the Looper move to left needle, the clearance is 0.2~0.3mm.

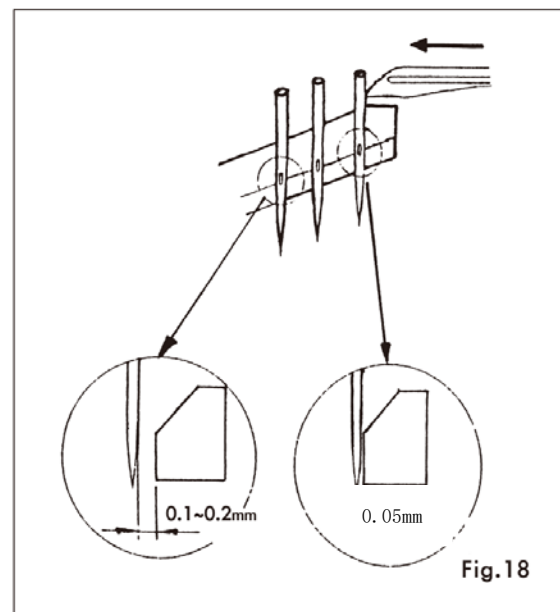
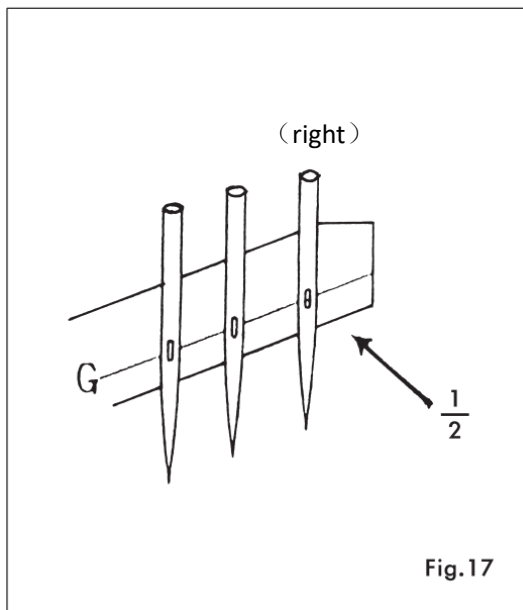
Remark:

The track of Looper pitching motion is a correct ellipse.



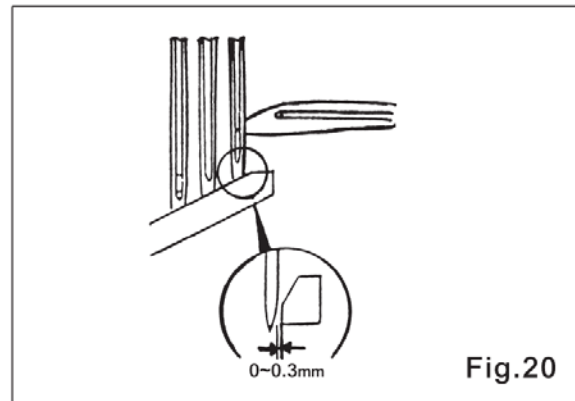
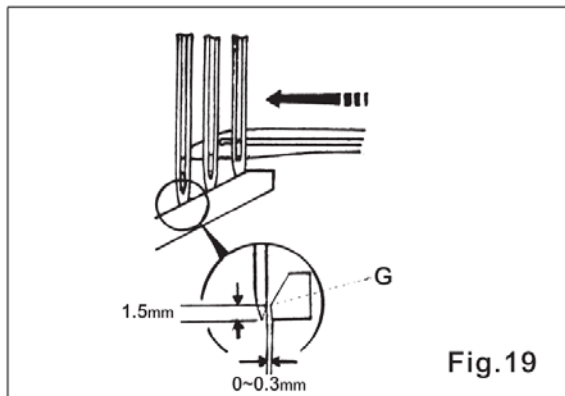
E. ADJUSTING NEEDLE AND REAR NEEDLE GUARD

1. When the Needle Guard moves to the front dead point the line (G) of Rear Needle Guard should be at the center of right needle hole.
2. When the tip of Looper moves to the center of right needle and the Rear Needle Guard to the front side The clearance between right needle is 0.05mm and between left needle is 0.1-0.2mm (Fig. 17, 18)



F. ADJUSTING NEEDLE AND FRONT NEEDLE GUARD

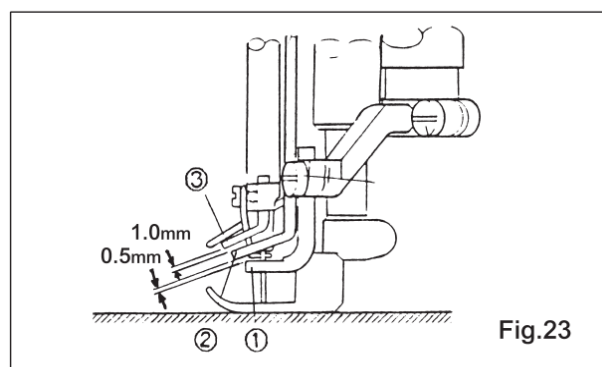
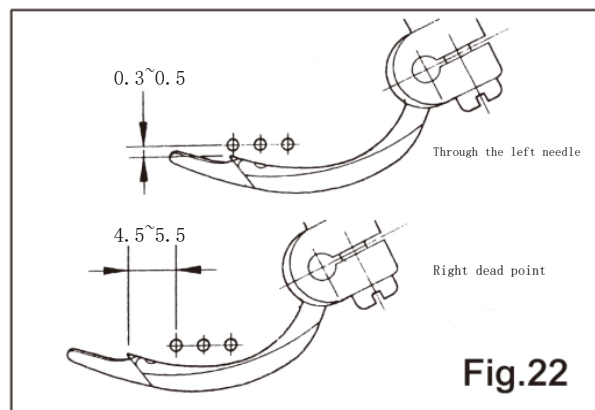
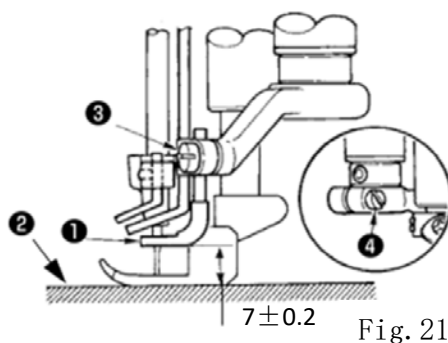
1. When the tip of Looper moves to the center of left needle, the distance of the tip of left needle pass the line (G) of Front Needle Guard is about 1.5mm. This is the height of Front Needle Guard. The clearance between the Front Needle Guard and right needle is about 0.3mm. (Fig.19)
2. When the Looper reverse to center of right needle, the clearance between right needle and Front Needle Guard is 0.3mm. (Fig.20)
3. When the situation of Front Needle Guard set in parallel up which meaning position is correctly.



G. THE RELATIVE POSITION OF NEEDLE,SPREADER AND SPREADER THREAD GUIDE

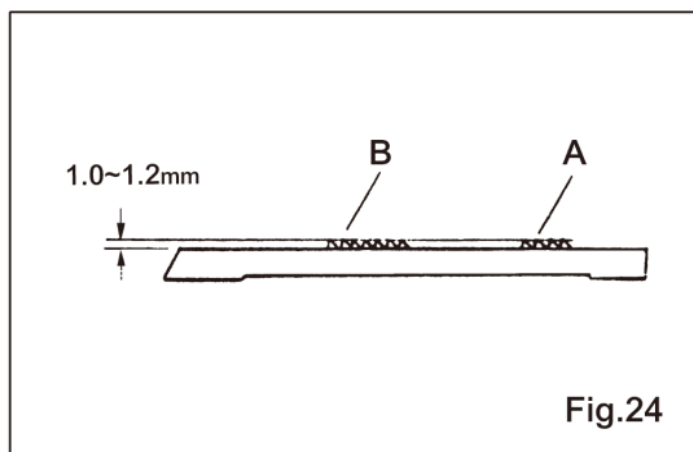
1. The height of looper① is the distance from the top of the needle plate to the bottom of the looper: $7 \pm 0.2\text{mm}$, which is adjusted by loosening the screw③. (Fig. 21)
2. When the upper looper moves from right to left, the gap between the tip of the upper looper(a) and the left needle is $0.3\sim 0.5\text{mm}$.
When the upper looper continues to move to the leftmost, the distance between the point(a) of the upper looper and the center of the left needle is $4.5\sim 5.5\text{mm}$. (Fig. 22)
3. When the needle bar moves to the lowest point, the thread groove of the upper fork guide plate (2) is just below the guide plate (3) hole. And the gap between the upper fork guide plate (2) and the upper fork (1) is 0.5mm . wireway

The gap between the thread guide plate (3) and the upper guide plate (2) is 1.0mm , and the thread hole and thread groove must be opposite. (Fig. 23)



H. ADJUST THE HEIGHT OF FEED DOG

When the Feed Dog rise up to the highest position, the surface of Feed Dog and Needle Plate must be in parallel. Besides, the teeth of Main and Differential Feed Dog must be aligned. The standard height of Feed Dog is about 1.0~1.2mm from its top teeth to Needle Plate. (Fig.24)



I. THE ADJUSTMENT OF LOOPER THREAD TAKE-UP

1. When Needle comes down from the highest position, and the left Needle reaches around 1/2 position of the Looper. (Fig. 25)

The looper thread will come over the highest position of Thread Cam(P).

2. Loosen the two screws (1) for above adjustment.

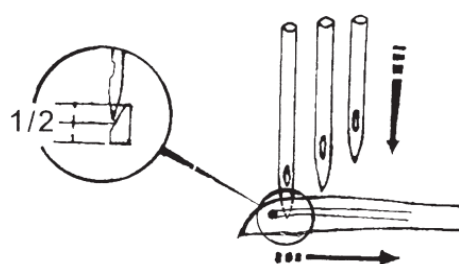
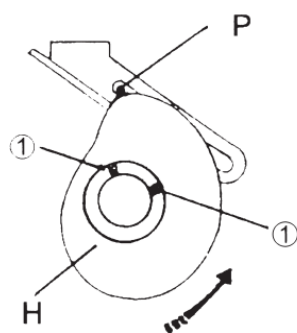


Fig.25

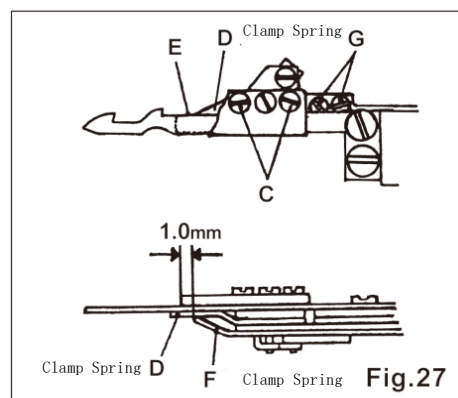
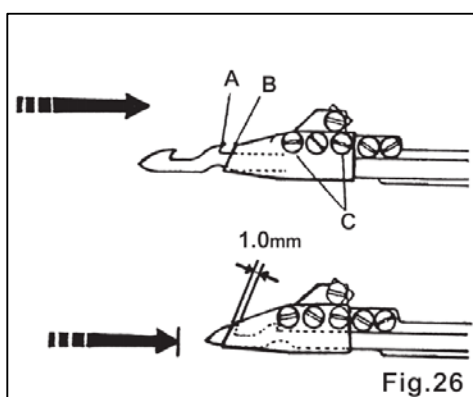
AUTO THREAD TRIMMER ADJUSTMENT GUIDE

A. THE RELATIVE POSITION ADJUSTMENT OF BOTTOM TRIMMER CUTTING PARTS

Remark :

Before you install the new Trimmer set into machine. Please always to check the relative position, the situation of sliding and the trimming effect.

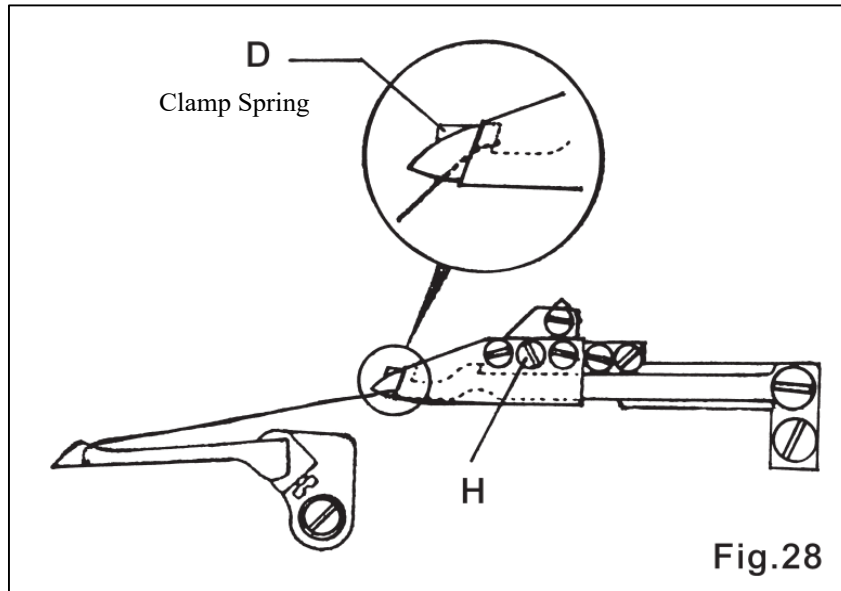
1. When Lower Moving Knife move to the right, the Moving Knife hook (A) of right hand side one align with the tip (B) of Fixing Knife. When the Lower Moving Knife move to the right dead point, The Moving Knife hook of left hand side one pass the tip of fixing Knife in 1.0mm. Loosen the screw (C) for adjusting the position of Fixing Knife. (Fig. 26)
2. The edge of Clamp Spring (D) align with the inside edge of Moving Knife of right hand side hook (E). Please loosen the screw (C) to adjust the position of Clamp Spring and Fixing Knife. The distance between the top of Clamp Spring Pressure and top of Fixing Knife is about 1mm. Please loosen the screw (G) to adjust the position of Clamp Spring Pressure. (Fig. 27)



3. When the looper thread has been cut off, the Clamp Spring and Moving Knife will clip the thread in stable. To increase the pressure of clipping thread turn the screw (H) clockwise and decrease the pressure turn the screw (H) counter- clockwise. (Fig. 28)

Remark :

The pressure of Clamp Spring must be moderate. If the pressure has been adjusted into too strong, it will decrease the life of Moving Knife. if the pressure has been adjusted into too weak, the looper thread will easy to lose from the clamp Spring. What is moderate pressure? It is meaning that the pressure to cut the thread easily.



B. THE RELATIVE POSITION ADJUSTMENT OF BOTTOM TRIMMER

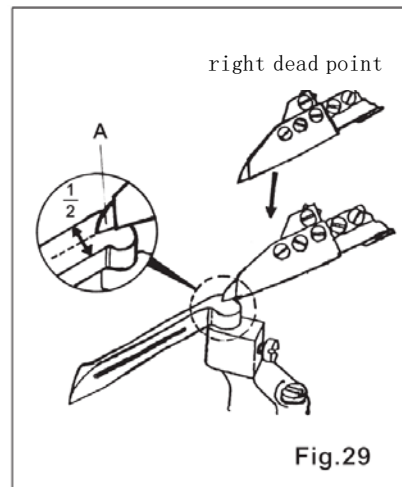
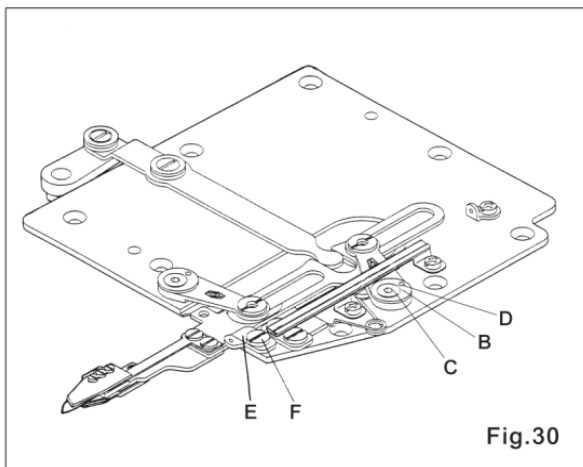
1. The Front and Rear position of Bottom Trimmer--

When the trimmer moves out from right dead point to the right hand side of looper, (1st action) the tip of Moving Knife(A)aim to the center of looper ridge. (Fig. 29) Please loose the screw(C) of Knife Guide Lever Eccentric Ring(B)and turn the Eccentric Ring for regulating the Moving Knife into right position.

Please set up the mark(D)of Eccentric Ring to 3 o'clock position in ordinary. (Fig. 29)

Remark :

When you would like to adjust the Eccentric Ring for changing the angle of under trimmer. please loose the screw (F) of lower knife Carrier Guide. (E) Please let the Lower Knife Carrier Guide (E) touch Lower Knife Carrier in gently and lock the screw (F) down after the angle of trimmer have been adjusted. (Fig. 30)

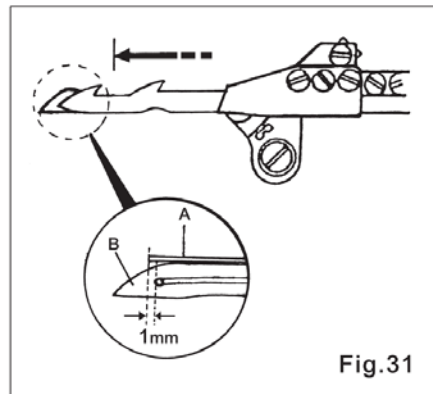
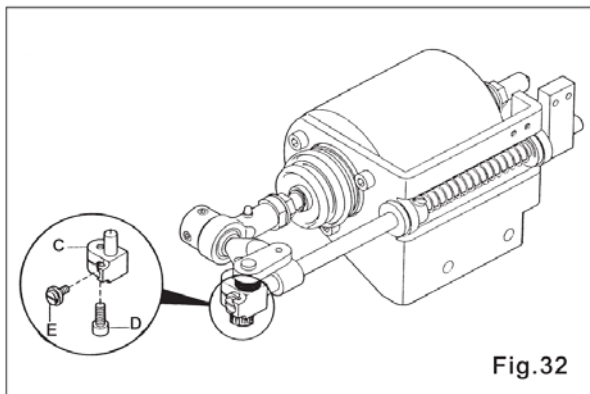


2. The Right and left position of Bottom Trimmer-

When the Moving Knife move to the left dead point, the tip of Moving Knife has passed 1mm over than the threading hole of looper (Fig. 31) When you would like to adjust the right & left position of Moving Knife. First, please loose the screw (D) of Connecting Block (C) to turn the screw (E) by screwdriver for micro adjusting the correct right & left position of Moving Knife. then to locked the screw (D) down. (Fig. 32)

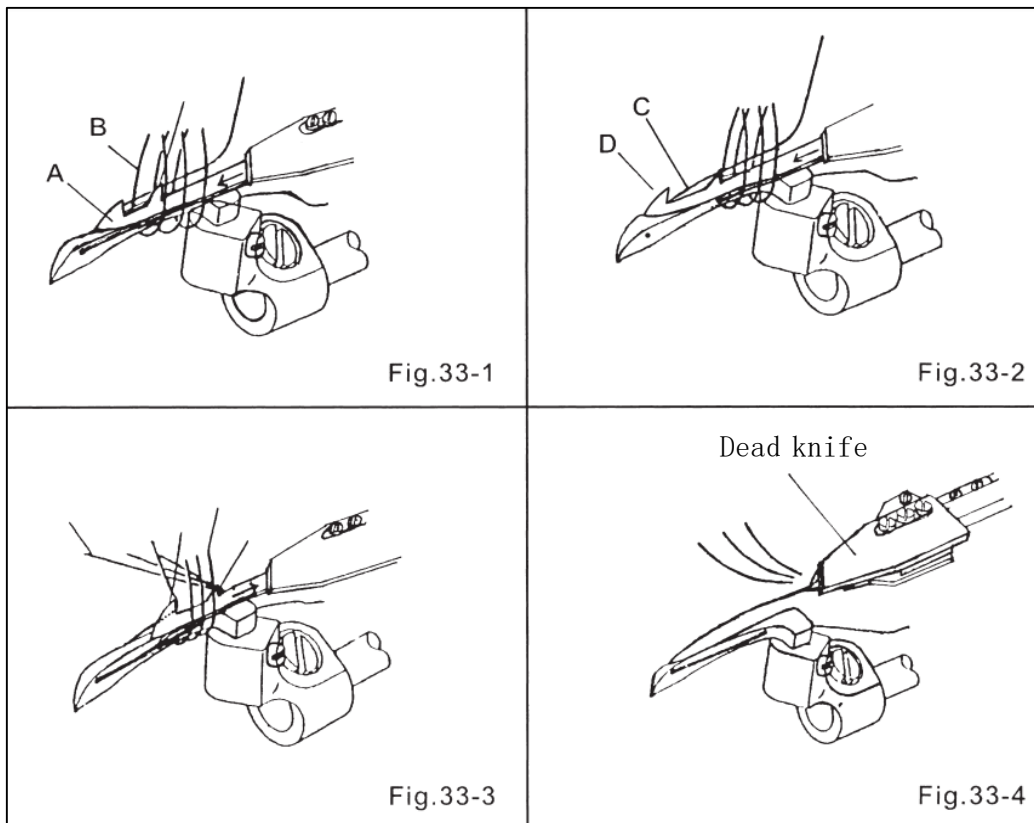
Remark:

- (1) When you finish adjusted , please be moved the Bottom Trimmer by hand to confirm the relative position correctly & smoothly.
- (2) When you adjust the relative position of Bottom Trimmer, please always confirm the needle bar in the top dead point & the looper in the left dead point which are the timing of cutting thread.



C. THE RELATIVE POSITION OF NEEDLE, LOOPER THREAD AND BOTTOM TRIMMER

1. When the Moving Knife(A) move to the left which must be passed the loop (B) of needle thread. (Fig 33-1)
2. When the Moving Knife move to the left dead point which looper thread must be dropped into the left hook (D) of Moving Knife(A) (Fig.33-2)
3. When the Moving Knife move to the right, the right hook of Moving Knife must hooks the needle thread and left hook must hooks the looper thread to pull into right side in same time. (Fig.33-3)
4. The needle & looper thread are pulled back by Moving Knife and be cut by Fixing Knife. The needle thread must be cut inefficiently and looper thread has clipped by Bottom Trimmer in stably (Fig.33-4)



D. THE RELATIVE POSITION OF SPREADER THREAD, NEEDLE, SPREADER AND TOP TRIMMER

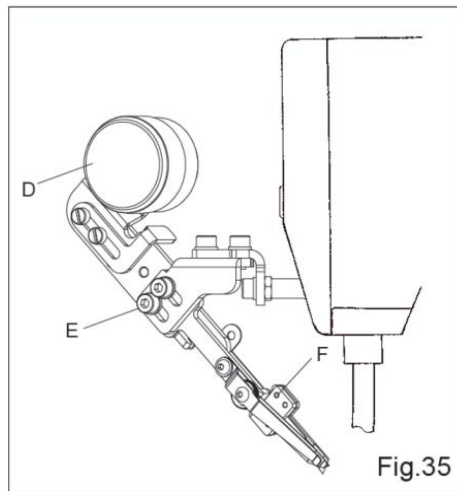
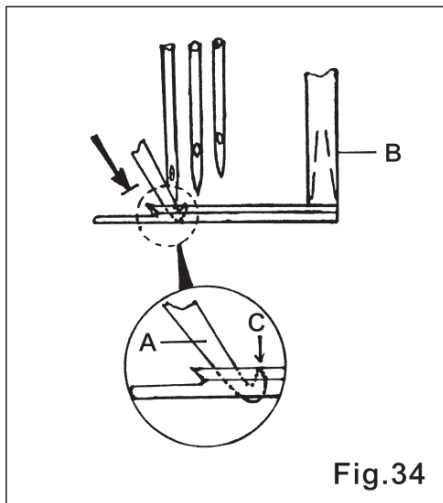
1. The height adjustment of Top Trimmer-

When the Top Trimmer Moving Knife move to the lowest point, the tip (C) of Moving Knife align with top of Spreader(B). (Fig. 34)

To loose the two screws (E) of Top Trimmer(D) then, to adjust up and down for top trimmer position. (Fig. 35)

2. The pressure adjustment of Top Trimmer-

The pressure of Top Trimmer Moving & Fixing Knife which be adjusted via micro turn the screw(F) to get the suitable pressure. (Fig. 35)



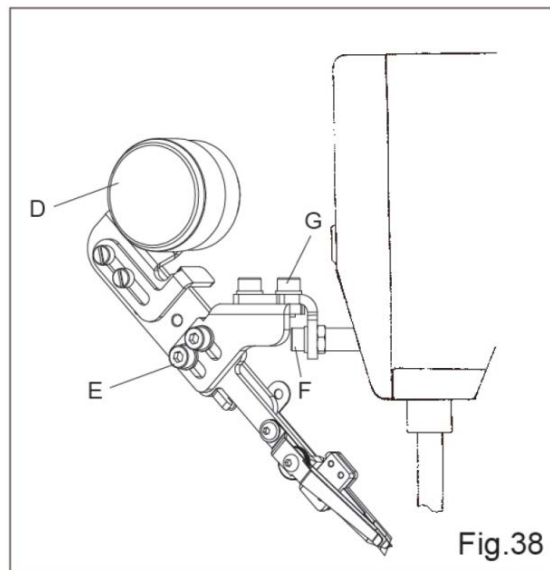
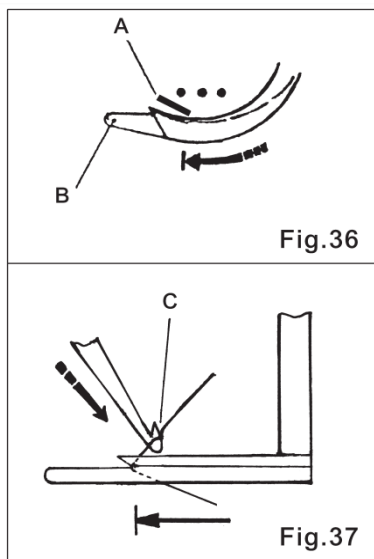
3. The angle adjustment of Top Trimmer-

Remark :

Before to adjust the angle of Top Trimmer, please make sure the height of Top Trimmer is correctly.

When the Top Trimmer Moving Knife (A) move to the lowest point, the Moving knife (A) must be located in the center of needle and spreader (B). We would like to special mention that the loving Knife don't touch and collide the needle. (Fig.36) When the Moving knife moves down, the top bevel of Moving Knife must be touch the spreader thread (C) (Fig.37) which will cause the spreader thread drop into the hook of Top Trimmer laving knife. To adjust the above relative position, please loose three screws (E). (F). (G) of Top Trimmer Fixed Block for adjusting. (Fig.38)

To loose the three screws step is (E)-(F)-(G) and lock down step is (G)-(F)-(E).



E. THE RELATIVE POSITION OF TOP WIPER

1. The height of Top Wiper(A)–

When the Wiper(B) swings to the bottom in level, the bottom of Wiper align with the tip of left needle which is the height of Top Wiper. (Fig. 39)

2. The front & rear position of Wiper(B)–

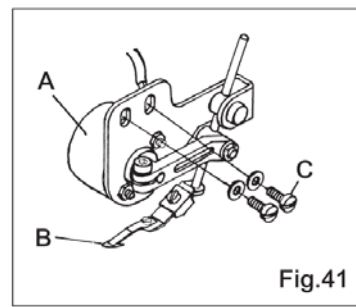
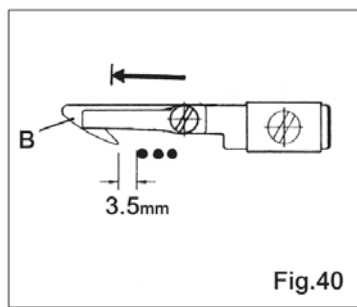
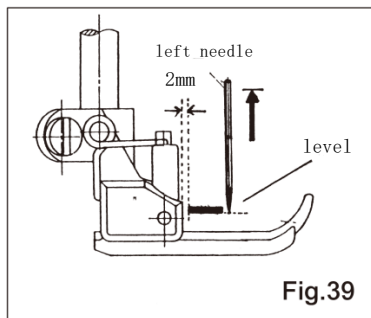
When the Wiper (B) passed the Presser Foot, the clearance between the Wiper and Presser Foot is 2mm. (Fig. 39)

3. The right & left position of Wiper(B)–

When the Wiper(B) swings to the left dead point, the clearance between the hook tip of Wiper and left needle is 3.5mm(Fig. 40)

Remarks :

To loose the two screws (c) for adjusting the relative position of Top Wiper (A). (Fig. 41)



REGULAR MAINTENANCE

A. THE CLEAR AND MAINTENANCE

1. Please always clean the machine appearance to avoid the cotton waste obstructs the threading hole and thread clamp which to cause the stitch unstable.
2. It's very import to always clean the crack (A) of feed dog system which under the needle plate. If the cotton waste accumulate too many in cylinder or block the suck oil tube for which will cause the oil leaking, Please always clean the Feed-Dog System and change the felt of suck oil tube (B) (C) in regularly (Fig. 42)

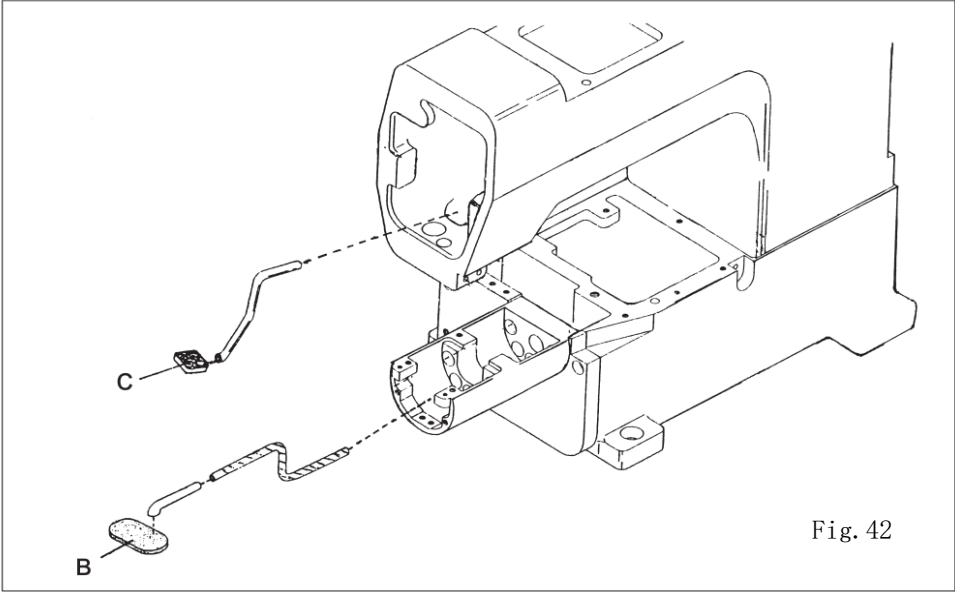


Fig. 42

(Cloth feeding unit A)

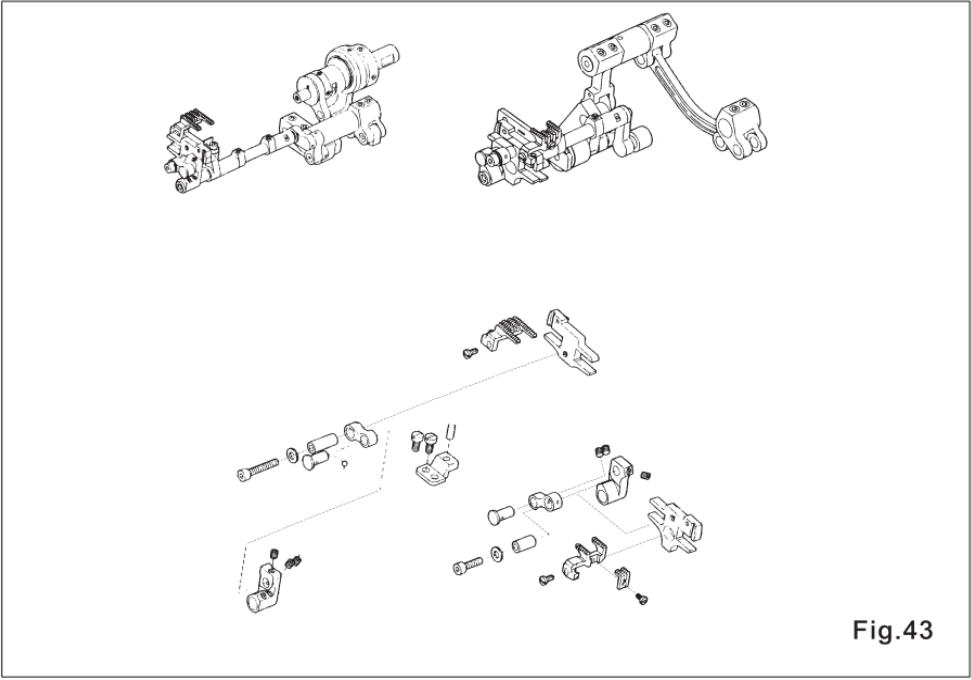


Fig.43

B. ERROR MESSAGES (THE USER INSPECTS THE MACHINE BY THEMSELVES)

Status 1: Skipped Stitch, Broken Thread- Solution:

Do you use a wrong model needle?

- (b) Does the needle bent? Does the tip of needle cracked? Or, the needle doesn't be installed in correctly position.
- (c) Does the thread keep in stock too long? Does the thread's thickness uneven? Does the thread too many connectors? Or, there is lose threading some threading eyelet.
- (d) Please check the tension of needle & looper thread have been adjusted too loosen or too tight by Thread Tension Adjuster.
- (e) The looper thread take-up is out of timing (Please ask the machinist to check and adjust it.)
- (f) Please check the relative position of Front&Rear Needle Guard are correctly(Please ask the machinist to check and adjust it.)
- (g) Please check the tip of looper have cracked or wore. The timing of looper and needle is out of order. (Please ask the machinist to check and adjust it.)

Status 2 : The Unstable Sewing engender Puckering

and the folding parts didn't be seamed in even-

Solution :

- (a) To refer the nature of fabric for adjusting the differential feed-dog, Differential Rae :
Puckering - To adjust the differential feed-dog ratio in large.
The folding parts didn't be seamed in even-To adjust the differential feed-dog ratio in small.
- (b)The pressure of presser foot must be moderately. Please take care that the needle plate between presser foot didn't have any gap.

- (c) The height of feed-dog must be refer to the nature of fabric for adjusting a reasonable height
- (d) The operator is according to the nature of fabric for adjusting the holding way of sewing and the tension of fabric be seamed.

Status 3: The machine nose in operation Solution:

- (a) Please always follow the installation to fix the machine head and table.
The wrong installation will engender the noise which come from the machine head and table resonance. (Main item: D.D.Type Mini ServoMotor)
- (b) Please check the front cover and screws. If the noise come from the loosen screw or front cover, please screw and fix them again
- (c) Please check the lubrication oil is enough or not? If the lubrication oil isn't enough which will to cause the machine noise and heat

Status 4: The lubrication system don't spout out the oil or inhale the oil back.

Solution :

- (a) Please check the oil tube have broken or not? Does the connector be locked well? If the oil tube had broken, please change it. If the connector didn't lock well, please lock it well.
- (b) If there are a lot of oil in the bottom of cylinder-bed or the bottom of needle bar, please check these two places have accumulated a lot of cotton waste to block the Inhale Oil Tube or not? "Please always clear the cotton waste at least two limes per week."

(c) Please check the Inhale Oil Tube have connect with Inhale Felt in correctly place.

Status 5: The "Bottom Trimmer" can't cut the needle & looper thread out-

Solution:

- (a) The point of trimming is incorrect. The needle bar didn't stop at top dead point when the machine stop.
- (b) The moving knife of bottom trimmer move to the left dead point which the moving stroke isn't enough.
- (c) In 1st motion of Bottom Thread Trimmer, the tip of moving knife which position is correctly or not?
- (d) Is the pressure of clamp spring too weak?
- (e) Please check the moving & fixing knife have abraded or relative position is out of order.
- (f) As the voltage drop, to cause the power of solenoid for trimmer is going to weak
- (g) There is too much cotton waste to accumulate under the needle plate which impede the moving knife didn't enter the thread hole in precisely .

Status 6: The "Top Trimmer" can't cut the spreader thread out-

Solution :

- (a) Please follow the installation manual of top trimmer to check all of top trimmer relative position is correctly or not?
- (b) Please check the pressure of top trimmer clamp spring is too weak or not
- (c) Please check the relative position & stroke of spreader is correctly or not?

Status7: The thread wiper can't take the needle thread up-

Solution :

- (a) Please double confirm the bottom trimmer have always cut the needle thread. If the needle thread didn't be cut out, the wiper is impossible to take the needle thread up. (*)
- (b) Please check the position of thread wiper have followed the installation manual to set up in correctly.
- (c) Please check the return elasticity of top wiper is too weak, or the wiper didn't move smoothly.

Remark :

If the needle thread didn't be cut by trimmer which will cause the "Top Wiper" can't take the needle thread up. Please use the thread clipper to cut the needle thread which didn't be out by under trimmer. To let the "Top Wiper" return back to the initial place which to avoid the hook of wiper crash the needle.

Status 8: To step on the pedal in the front which the machine didn't operate-

Solution :

- (a) Please cheek the green light on the Under Trimmer Position Security Switch is be switched on or off. (The green light locate at back side of machine head) if the green light is be switch off which meaning is that under thread trimmer didn't return back the position, the Security Switch have broken the electric power in automatic which to avoid the Looper crash the under thread trimmer.
- (b) Please cheek the error code which be showed on the screen of control box. Then, to follow instruction manual for solving the problem.

(c) Please check the plug of junction line which between the servo motor and control box. Have the plug been plugged in well? Or, the plug has plugged too loose which to cause the bad connection.

Status 9: To step on the pedal in rear which the Thread Trimmer System and Pressure Foot Lifter didn't operate-

Solution :

- (a) Please check the terminal of Top, Bottom Thread Trimmer and Pressure Foot Lifter junction line for which locate at backside of machine head. If the terminal didn't connect well, the signal is going to bad transmission to cause these moving parts didn't operate.
- (b) Please use your hand to push the Under Thread Trimmer System and Thread Pull-Off Mechanism. Then, Please check these mechanisms move smoothly or not?
- (c) Please check the error code which be showed on the screen of control box. then, to follow instruction manual for solving the problem.

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