# User´s Manual

GARUDAN®

**GARUDAN GPS/G-1507**
**GARUDAN GPS/G-2010**
**GARUDAN GPS/G-3020**



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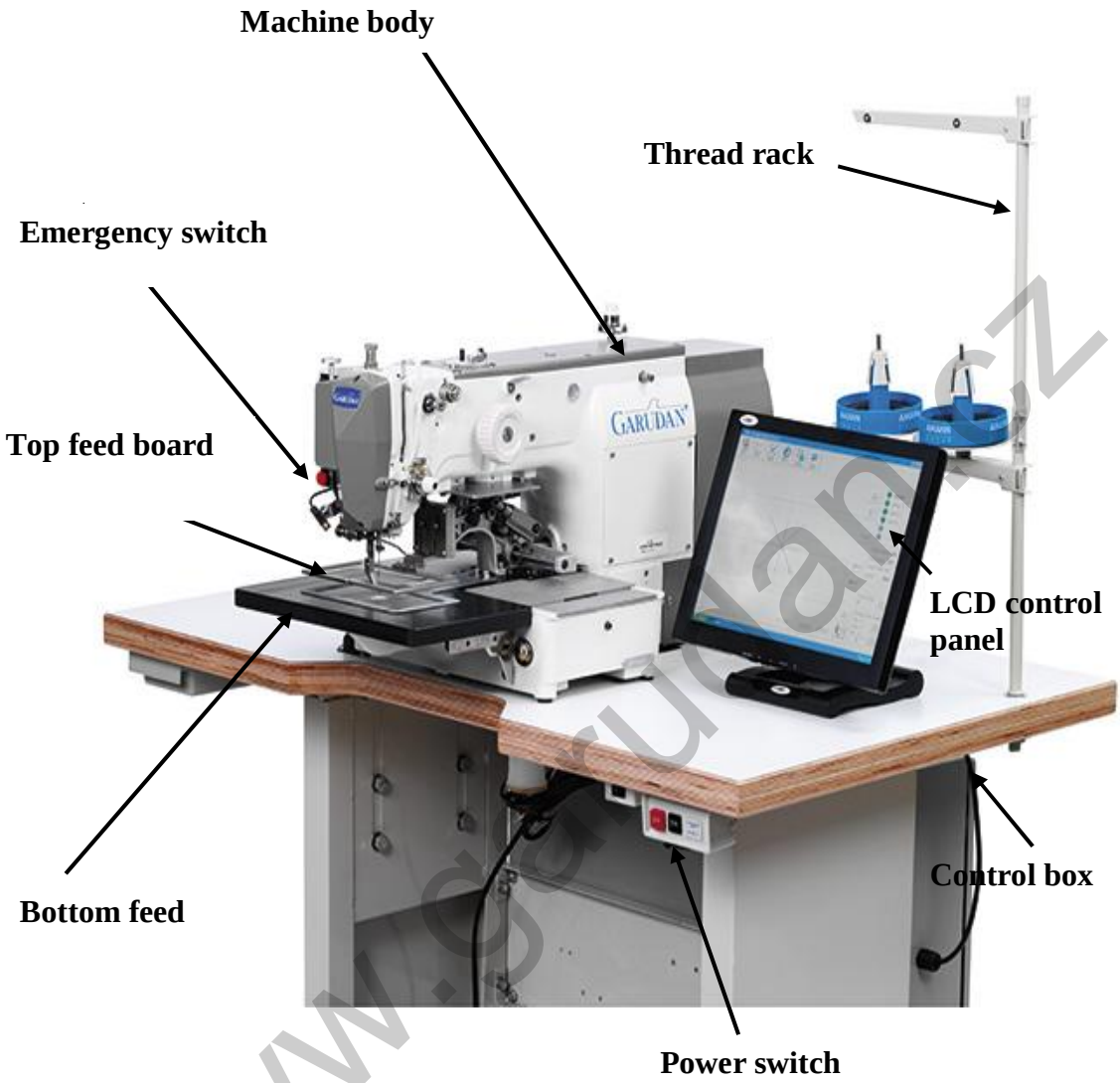
# Catalogue

## 1) SPECIFICATION

| Model | 1507 | 2010 | 3020 |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Sewing area | 150x70 mm | 200x100 mm | 300x200 mm |
| Max sewing speed | 2800 spm **(see table on page 27)** | 2800 spm **(see table on page 27)** | 2300 spm **(see table on page 27)** |
| Stitch length | 0,1 – 12,7 mm | | |
| No. of Needles | 1<br>135x17<br>Nm. 80-180 | | |
| Hook | Double capacity Shuttle Hook | | |
| Lift of Presser Foot max. | 20 mm (Stroke: 4-7 mm) | | |
| Lift of Feeding Frame max. | Standard 20 mm | Standard 20 mm | Standard 32 mm |
| Thread Trimmer | Standard | | |
| Memory Device | USB port – all devices USB Compatible | | |
| User Interface | Ethernet, 1 vstup 100BASE-TX/10BASE-T, connector RJ-45 | | |
| No. of Stitches in memory | 240 000 000 | | |
| No. of Patterns in memory | 1 000 | | |
| Driving Unit | Motor servo AC 750 W | | |
| Power Supply | 1-Phase 220 V, 240 V | | |
| Air Consumption | 0,55 Mpa (5,5 kg/cm$^2$) | | |
| Ambient temperature | 5℃～40℃ | | |

## 2) DESCRIPTION

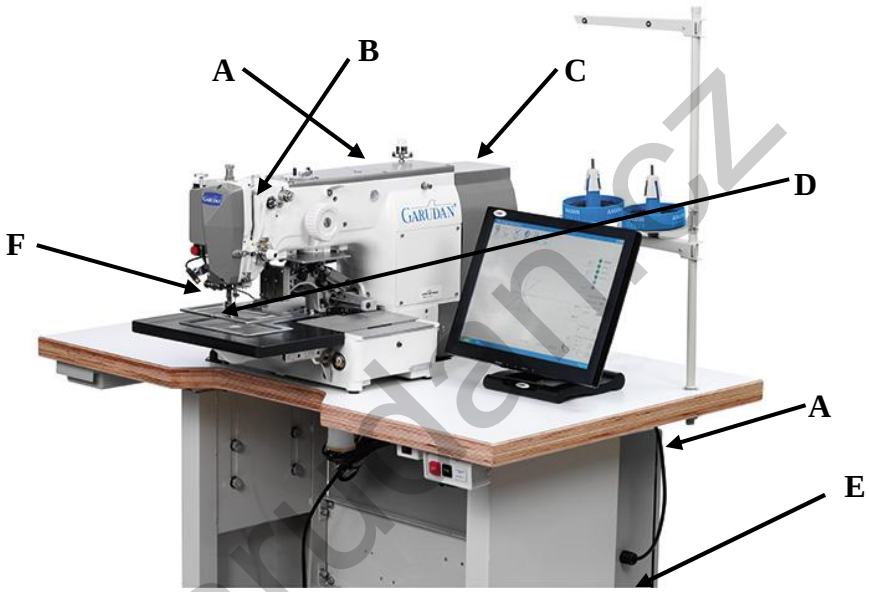


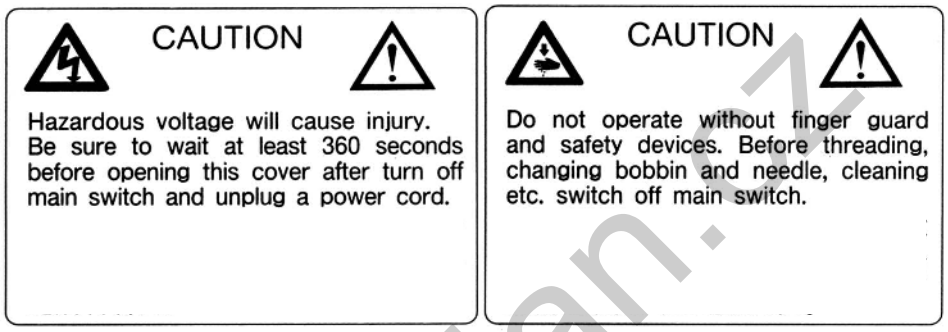



## 3) SAFETY INSTRUCTION BOOK

In this manual, “danger”,“ warning” and “attention” marks are shown on the point’s concerting safety issues. If not following its instruction, the person may be hurt and mechanical troubles may be caused as well.

| | |
|---|---|
| **products transportation** | Transportation should be done by the person who is familiar with safety guide and rules. Special Attention should be put on the following aspects.<br>**a**）It should be done by two people at the same time.<br>**b**）To guarantee the safety, be sure to clean oil dirt on hands |
| **Installation** | Because there is possibility that installing environment may result in mechanical obstruction and damage, please respect the following items:<br>**a**）Unpacking procedure should be done from top to bottom. As in case of wooden package, please take care of nails on corners of it.<br>**b**）Dust and moisture are the causes of mechanic contamination and eroding. So ventilation device should be installed and periodical cleaning should be done as well.<br>**c**）Direct light should be avoided because long time of exposure under direct light may change the color of machine or cause its distortion.<br>**d**）Provide enough running room, leaving a space of 50cm around.<br>**e**）It is strictly forbidden to risk running in case of possible explosion. It can not be used in air filled with suspended mote, in fog or under oxygen. |
| **Maintenance** | When maintenance is needed for the machine, the authorized staff from the company should perform this task.<br>**a**） For cleaning, turn off power first, leave 4 minutes for complete discharge, and then do repair work.<br>**b**）Before consulting the manufacturer, the model or parts can not be freely changed.<br>**c**）For repairing, the origin parts from the manufacturer should be used.<br>**d**）After repairing, all the safety covers should be put on again. |

| | |
|---|---|
| **Safety devices** | **a)** Safety labels: for precautions while operating.<br>**b)** Thread take-up lever: for preventing the body contact with thread taking up.<br>**c)** Motor shielding cover:<br>**d)** Hand guard plate: for keeping fingers away from needle.<br>**e)** Power type label: for preventing getting an electric shock(grounding and using Hz)<br>**f)** Safety plate: for guarding eyes while hooking thread<br>  |
| **Operation** | Series are industrial equipment for pattern sewing on fabrics and similar material. Please obey the following items while running.<br>**a)** Read this manual carefully before start; make sure to understand all concerning running.<br>**b)** Put on the work uniform before operation.<br>**c)** Let body parts keep away from the running parts such as needle, hook or pulley.<br>**d)** The safety plate or other safety devices are forbidden to be removed while running.<br>**e)** The machine should be grounded.<br>**f)** "OFF" Switch off before open the central box and the electric box, and make sure all switches are off.<br>**g)** Stop running before threading or checking.<br>**h)** Operators are strictly forbidden to switch on power while stepping on the treadle.<br>**i)** An electric outlet can not be used to match several motors.<br>**j)** The machine should be located in the place where is far away from the noises caused by high frequency motors.<br>**k)** Keep fingers away from upper feed plate when it is working.<br>**l) The max air consumption is 5,5 MPa.** |

| | |
|---|---|
| | |
| **Warning marks positioning** | For safety‘s sake, the warning marks are lapelled on the machine. Please pay attention to the notes on warning marks when you operate the machine. One mark is on the control box and one is under the machine on the stand. |
| **Marks content** |  |

## 4) SAFETY INSTALLATION

A. In order to prevent the accident resulting from disoperation, the machine can not be used 10% beyond or 10% under the formal voltage.
B. In order to prevent the accident resulting from disoperation , the using air pressure devices such as air cylinder should be validated on their authorized pressure in advance.
C. For safety, please use under the following conditions.
● The ambient temperature of the running machine is from 5 to 40 Celsius degree.
● The ambient temperature of preserving the machine is from -10 to 60 Celsius degree.
D. Humidity: within 20～80% (relative humidity)
E. **The max pressure of air consumption is 5,5 MPa. Check it before first using of machine.**

## 5) ELECTRIC DEVICE SETTING

A. power voltage
●The voltage is only used with the varying range of 10% of the normal voltage.
●Power frequency should be kept within （50Hz）1% varying range of normal frequency in.
B. electromagnetic wave noise The power should not be adjacent to strong magnetic field or high frequency stuff.
C. Sticking other devices or small ornamental articles onto the adjusting box should be under safe low voltage.
D. The liquid such as water or coffer is prevented from flowing into the adjusting box or motor.
E. The adjusting box or the motor should not be located on the ground electric device setting.

## 6) PREPARATION BEFORE USING

### 1. Lubricating

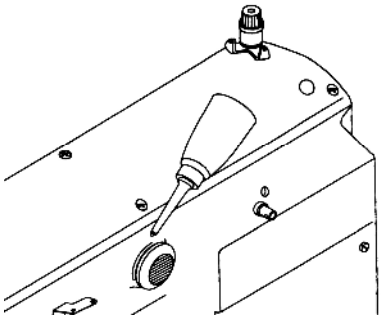


Fig. 1

Check the amount in the oil cup on the bracket

Lubricate the hole on the top of the bracket.

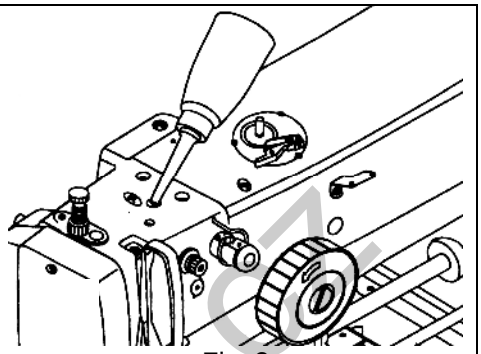


Fig. 2

The machine should be lubricated first before its first use or reuse after a long period of idleness

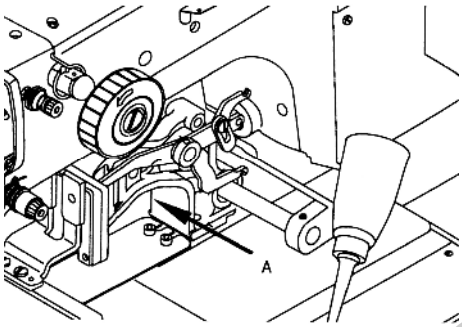



Fig. 3

Move the feed bracket to the direction of “A” as the figure shows, then fully fill oil through the lubricating mouth.

Fill silicon oil in the cup on the bracket.

Silicon oil cup

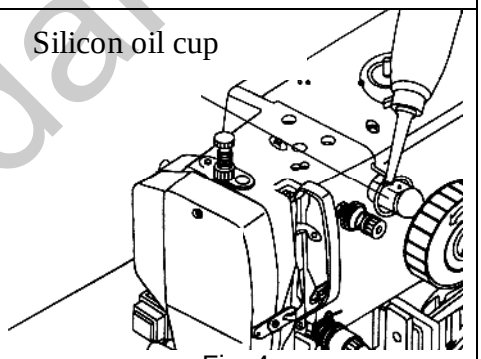
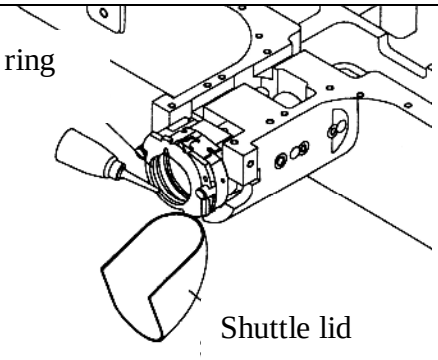


Fig. 4

Open the shuttle lid, fully lubricate the shuttle, then put on the hook lid.

For safety, the hook lid should be closed during running.

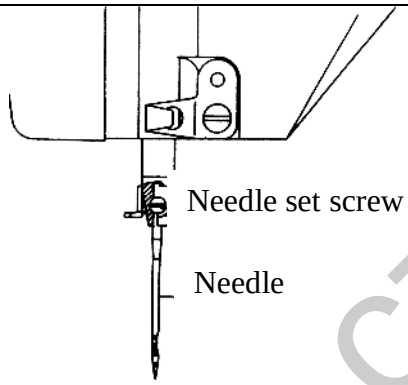
Shuttle ring



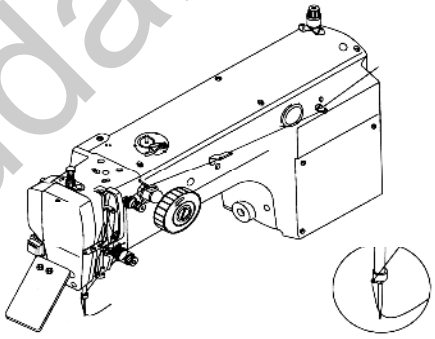
Shuttle lid

Fig. 5

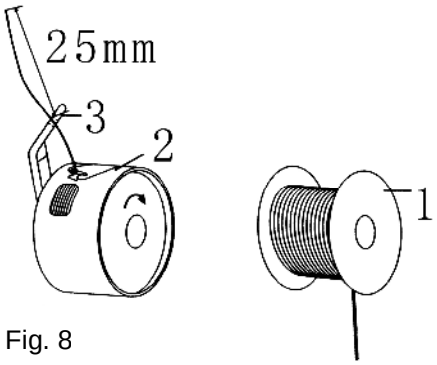
### 2. Needle installing

| | |
|---|---|
| Loosen the set screws on needle holder, fully insert the needle end into the needle socket in needle holder while keeping the needle slot facing front, then tighten it with the screws. |  Fig. 6 |

### 3. Threading

| | |
|---|---|
| Optimize the thread take-up lever, lead the thread as the figure shows. When lead the thread for heavy material through the needle holder guide, do as the small figure shows. |  Fig. 7 |

### 4. Threading bobbin thread

| | |
|---|---|
| A. (28)<br>Put Bobbin into Bobbin Case as the figure shows.<br>[Notice] Viewing from the back of shuttle hook, the shuttle rotates in counterclockwise.<br>B. Bobbin thread is led through the hook gap and then tied on Hole<br>C. The remain of bobbin thread end should be kept about 25mm outside Hole. |  Fig. 8 |

### 5. Installing and removing the shuttle case

Hold Handle and insert the shuttle ending up clicking.

[Notice]

Before the shuttle is fully installed, starting machine will cause thread coil in a mess or make shuttle case flick out.

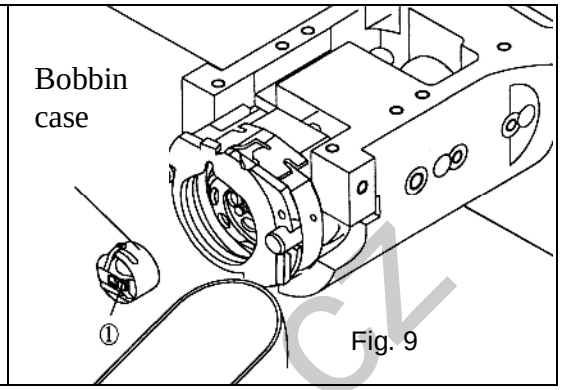



Fig. 9

### 6. Thread tension adjustment

A. Needle thread tension adjustment (10)
As the figure shows, turn Screw clockwise to increase the tension, while counterclockwise to reduce the tension.
B. Bobbin thread tension adjustment (11)
As the figure shows, turn Screw clockwise to increase the tension, while counterclockwise to reduce the tension.

Fig. 10

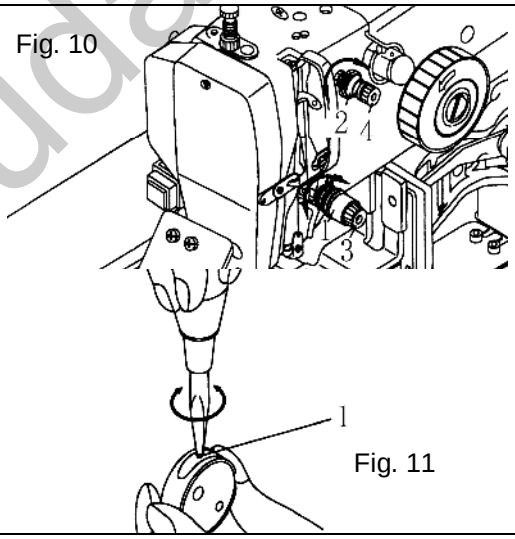



Fig. 11

### 7. Leading bobbin thread

A) Insert the shuttle into Thread Binding Drive Shaft.
B) Stick Thread Binding Bar to the shuttle and then start machine
C) When the shuttle is fully winded with thread, Thread Trimmer④ will cut the thread.
On display you have to set winding the bobbin (manual for software).

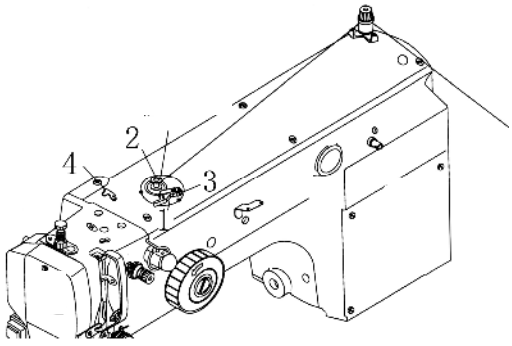



Fig. 12

### 8. Adjusting pressure foot height

A. Loosen Screw 1
Keep a height gap of 0.5mm between the pressure foot low tip and the sewing material, then tighten Screw
[Notice]
After adjusting the height of pressure foot, the treadle position should be ensured.
If too large a distance, the treadle will spring up.
If too small a distance, disoperation will occur.

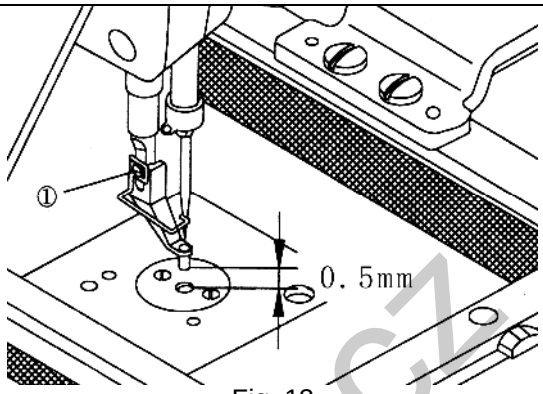


Fig. 13

### 9. Used oil disposal

The oil container attached under the worktable should be taken away for cleanup after it is full of oil.
[Notice]
While the oil container is taken away, possibly oil will spray on the ground, so please place paper or its like on the ground for this purpose.

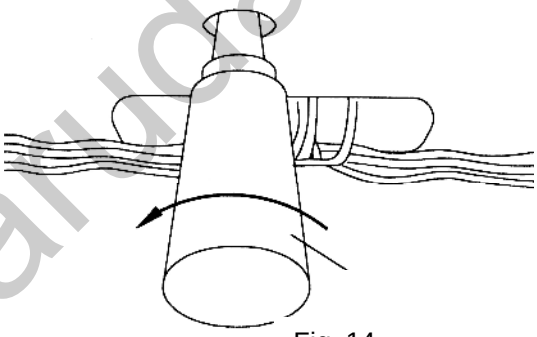


Fig. 14

## 7) MECHANIC MAINTENANCE

### 1. Adjusting needle bar

Loosen Screw at the lowest position of the needle holder, adjust the needle upper line to be in accordance with the needle holder socket line as the figure shows. Then tighten Screw.

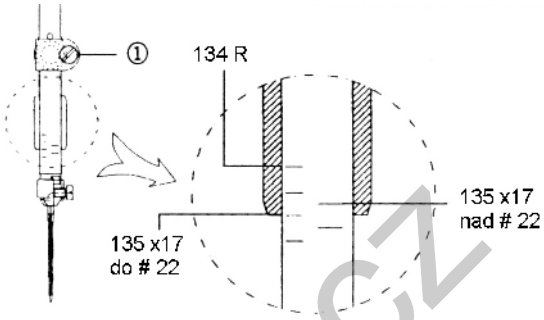



Fig.15

### 2. Adjusting needle and shuttle

A. At the lowest position of the needle holder, adjust the needle upper line to be accordant with the needle holder socket line as the figure shows.

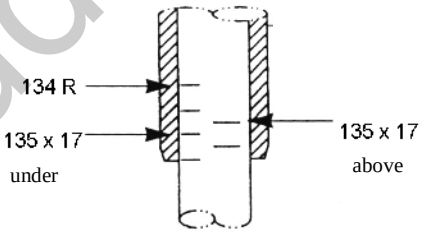



Fig.16

B. Slide open Needle Plate, take out Shuttle Ring from Shuttle.
C. Keeping Needle Center Piece(A) in line with the screw tip of shuttle
D. Loosen Screw, rightward eddy needle adjust axis let the distance is 0.05-0.1mm between need piece (A) and shuttle, and than adjust shuttle direction .
E. After adjust screw eddy direction, let needle and shuttle distance is 7.5mm, screw of

[Notice]

For safety, fully tighten the screw after adjusting the big shuttle

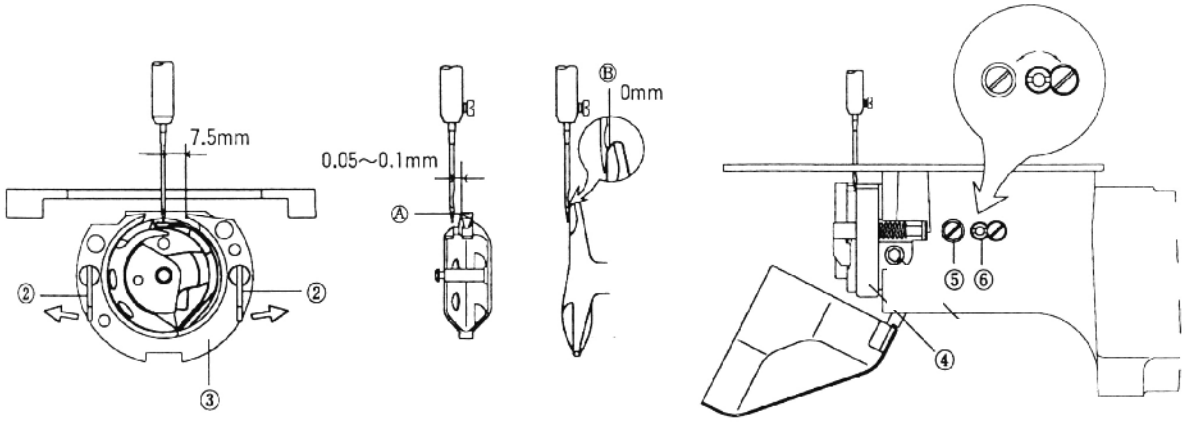
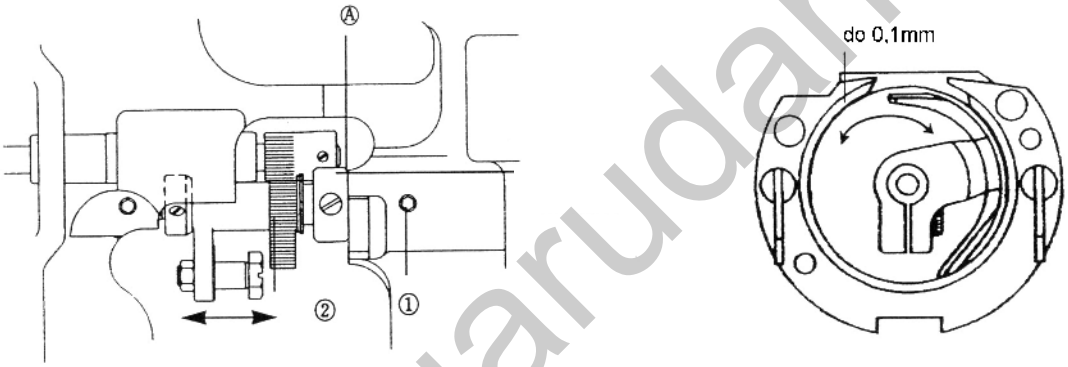


Fig.17

**3. Adjusting bottom shaft gear and swing gear**

A. Loosen Screw 1 and 2.
B. While rotating the upper shaft, turn the eccentric in the direction shown by the arrow to adjust the gear drive position.
[Notice]
When the swing gear is not positioned accurately, the machine will not run.
C. After surge organ axis loop (right) keep close to desk (A), tighten the screws.
D. After surge organ axis loop (right) keep close to desk (A) eddy according to arrowhead, let the top of shuttle have 0.1mm clearance and could eddy easily.
[Notice]
If the clearance is too large between gear teeth, the machine will make increasing noise, and if too small, it will not be started.
E. Fastening screw ①

Fig.18




**4. Adjusting the shuttle spring position**

A. Separate the low feed plate, loosen the top screw of the spring, align Back point (A) vertically, and adjust the spring to keep it in line with the center (B) of needle, then tighten the screw.

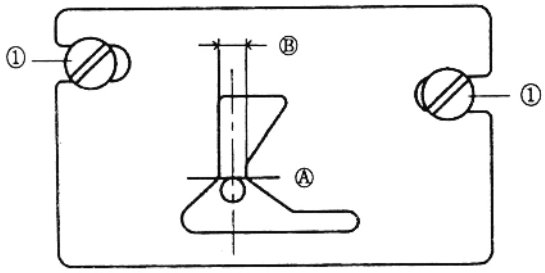



Fig.19

**5. Adjust the height of feed board**

Loose the left and right two-sided screws(2) in driven-shelf ‘s up-down pole operation board (1) , operation board along the A direction put up the height of up-feed board (3) must be reduce, along the B direction put down the height of up-feed board (3) must be increase. The last peg operation board screw in up-down pole operation board.

[Notice]

After adjust the height of up-feed board (3), fix the screw.

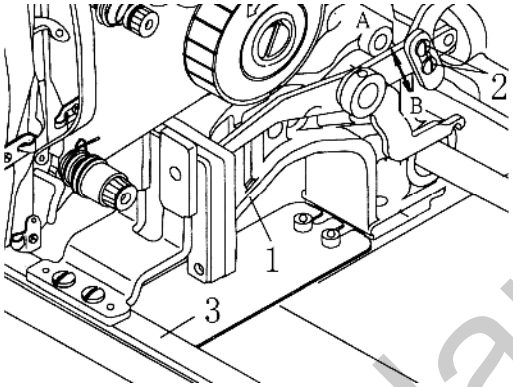



Fig. 20

**6. Adjust the setting of press-feet axis**

A. The underside of press-feet drive cam and the center of up axis punctuation center adjust superposition, cam reticule and up axis interlunations adjust accord, fix the screw (1).

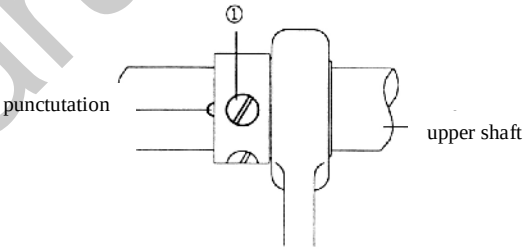



Fig.21

B. Adjust the height of press pole.

After adjusting the press pole, the top of press pole must basset about 17 mm, and make sure needle is not across the cent of press-feet shelf , after all fix screw (2).

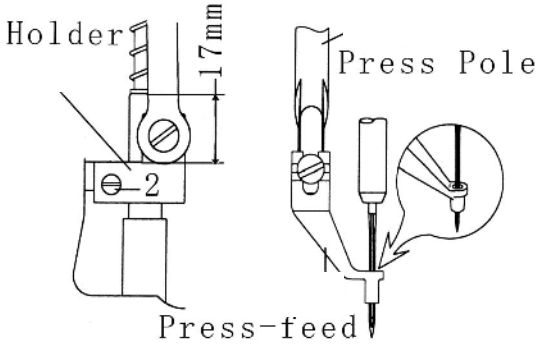


Fig. 22

C. Adjust the press-feed adjust pole
a) Loose position connect (plug ) board screw , make some distance between position connect board (4) and press-feet connect fix screw (3) .
b) Loose screw (1), move the press-feet connect screw(2) to the right side of adjust pole, and then fix the press-feet connect screw(2) .
c) Turn the handle block, make the needle shelf to the lowers position
d) Move up the press shelf ,make sure the distance between press shelf and press shelf bushing is about 4mm, and fix the screw(1).

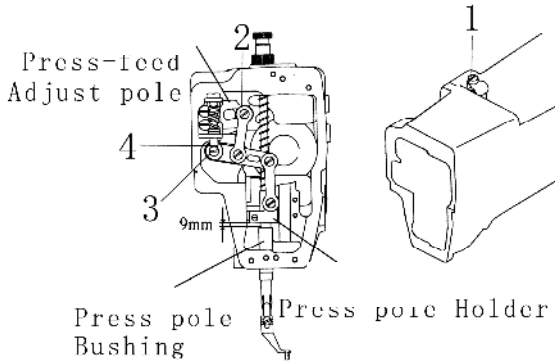



Fig. 23

D. Adjust the distance of press-feet.
Loosen press-feet adjust pole screw (1)along A position move ,the distance of press-feet could increase , along B position move , the distance could reduce.(the distance is 4mm when leave factory )

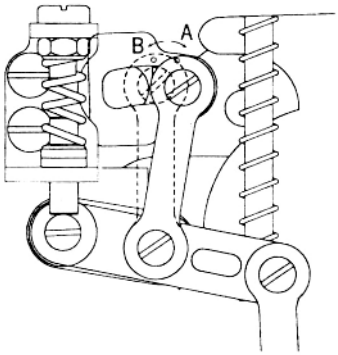



Fig. 24

**7. Adjust footplate part**

Fix screw , decrease the distance between press-feet left (1) and right (2) , make two footplates could press the axis nail in press-feet .if use thin material or the pressurer is less , move the electromagnetism - iron (5) along A position, the last close the screw .

[Notice]

Press-feet arm left and the right angle inconformity move screw possibly broken when assembling machinery , direction moves electromagnet (5) to A potion the to the end press-feet now moving upward , moving facing the right about to the end the pressure of footplate could decrease and then middle treadle of sewing is able to reset

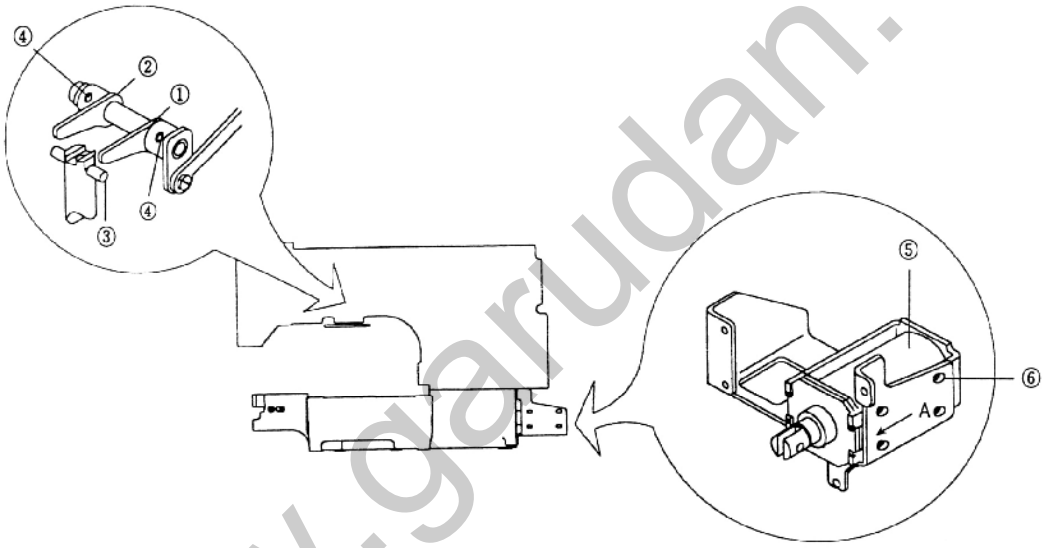



Fig. 25

**8. Adjustment loosening thread of component**

A. Set up loose thread breach location (26)

Move loose thread breach , let loose line breach (1) long hole on the right can touch at low-lying area line screw (2)column location, and then fix screw.

[Notice] When location is inexact, mabe remains reduce or unsure , so when the machine run could, it will occur the thread drop .

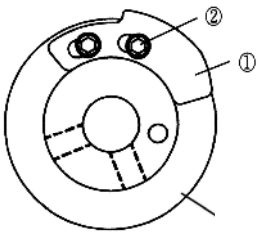



Fig. 26

B) Interpose loose thread brake location
a)Cancel loose thread replacement spring.
b)Loosen loose thread brake , adjust the distance between adjust drive pole and loose line pin is 0.3mm, when push loose thread brake to right , the distance between adjust drive pole and loose line pin will be reduced , push it to left and the distance will be increased.
c)Install loose thread replacement spring.

[Notice]
In order to prevent accident, must use tools when change loose thread replacement spring.

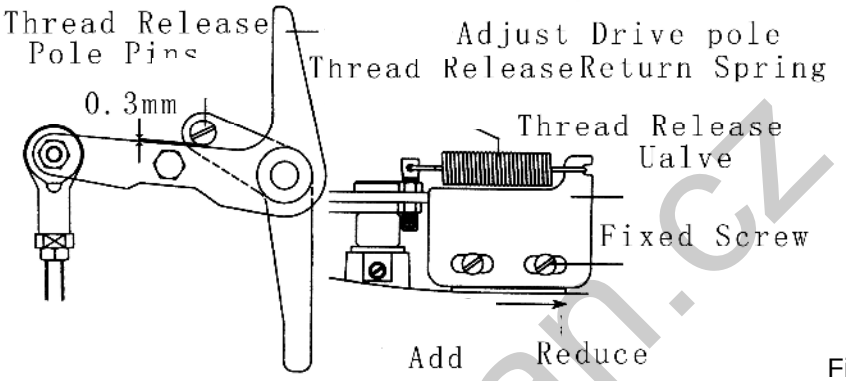



Fig. 27

C) The way of adjust thread splint clearance

a) Across to organ unclose thread splint .
b) Inside thread splint clearance is 0.6-0.8mm commonly, when use thick material ,the distance is 0.8-0.1mm .
a) Finally fix screw.
[Notice]
In order to prevent accident, must use tools when change loose thread replacement spring.

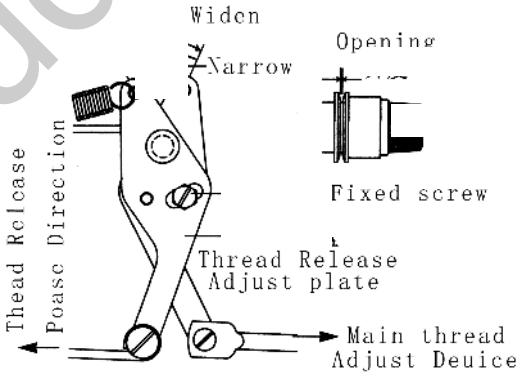



Fig. 28

**9. Adjust the fittings of wiper mechanism**

A) The way of adjust wiper mechanism position

a) When the distance between needle tine and needle board is 19.5mm , loose screw (1) and (2) in wiper mechanism 'eddy axis
b) After pressing the wiper drive brace (3) of wiper mechanism, adjust wiper axis (4), make the distance between wiper thread hook and needle be 10mm.
c) Please screw down (1) of circumrotate axis and brace screw (2).
d) Loose the screw (5) in wiper thread hook, let the distance between wiper thread hook and needle be 1mm, and then fix screw.

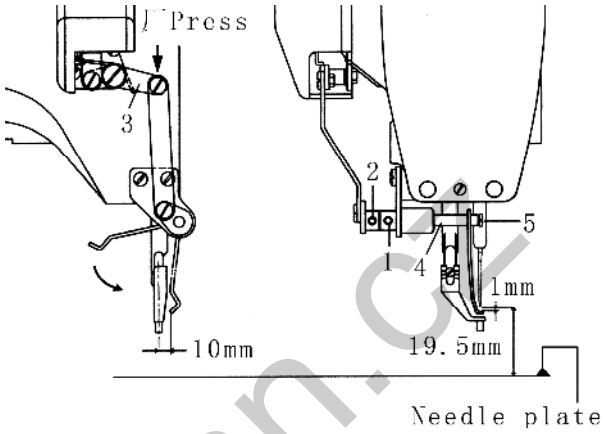



Fig. 29

B)switch of wiper mechanism

Press switch (A) "-" position to start wiper mechanism, press switch (A) "Opposition to shut mechanism.

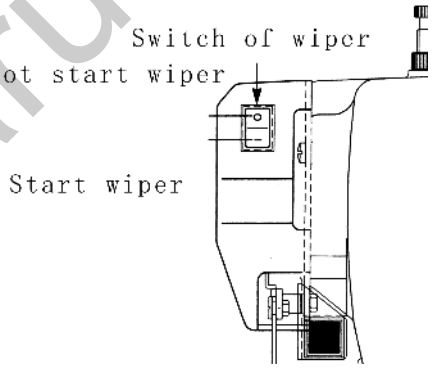



Fig. 30

**10. Adjust about cut-thread parts**

A. Adjust the position of cut-thread cam.
Adjust the distance of up-axis and cut-thread cam to 2.5mm, and adjust cut-thread cam mark consistent with up-axis mark, and then fix screw (1).

[Notice] If the position of cut-thread cam is not nicety, may be cut-thread could not be achieved or machine could be locked.

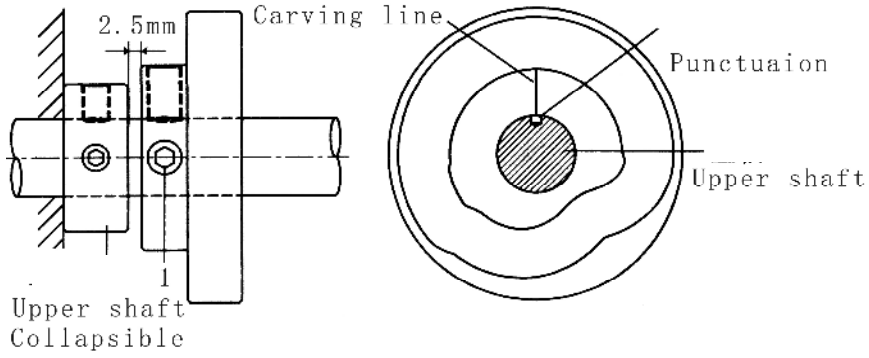



Fig. 31

B) The way of adjust connect determent-organ

a)

[Notice] If no clearance between cut-thread cam roller and both side of cut-thread cam , may be cut-thread could not be achieved or machine could be locked.

b) Put cut-thread cam roller inter the cut-thread cam active part, connect determent-organ screw touch the part (A) of cut-thread connect pole, and then fix screw.

[Notice] If the position of rot is not nicety, cut-thread returns to a cut-thread raw location speed is slow or first needle state is not good.

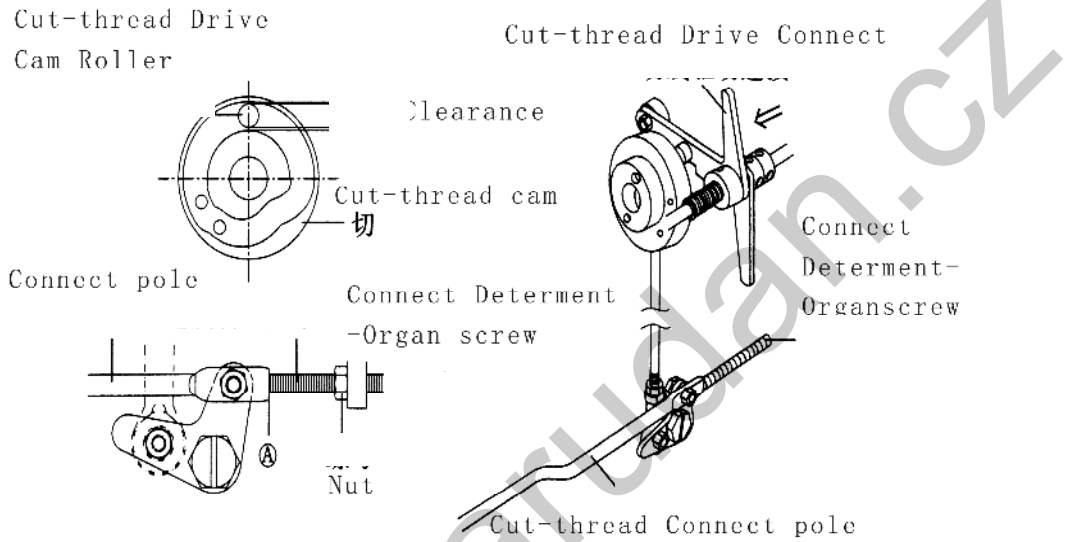



Fig. 32

C) Cut cop latch location

a) please loose cut-thread, drive the screw linking and cutting shuttle dabber fixation .

b)The eager cop latch holds hook face and (A) alignment

c)Screw fixed screw tightly

[Notice] If the position is not nicety, may be cut-thread could not be achieved or machine could be locked.

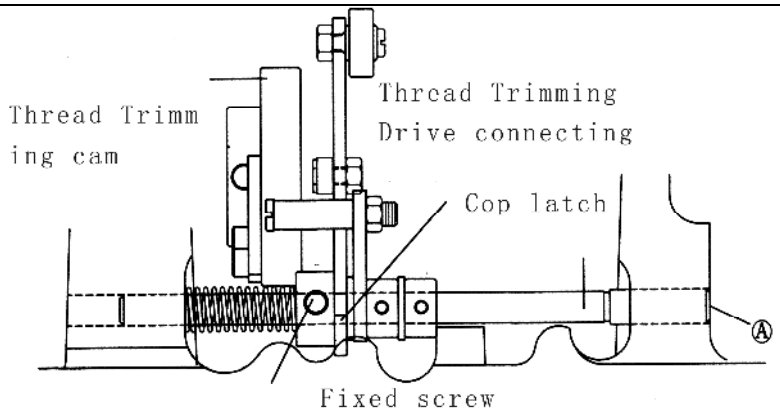



Fig. 33

D) Connect with the direction of determent-organ

a) Be sure do not run cut-thread parts , loose the screw of cut-thread drive determent-organ , adjust clearance to 0.3mm between cut-thread drive and the concave of cut-thread drive determent-organ .
b) (47)Screw fixed screw tightly.
[Notice] If the chosen position is not exact, it may be occur cut-thread badness or machine locked.

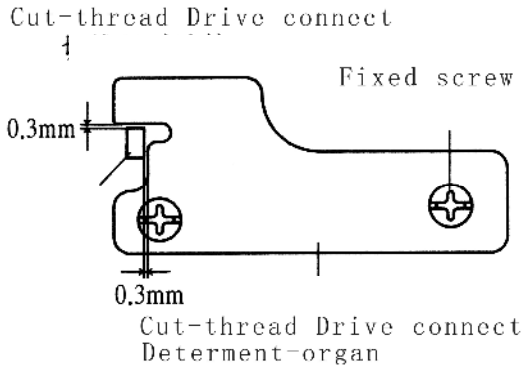


Fig. 34

E. Adjusting the position of thread cutting tube
a) Steed screw of thread solenoid bracket will adjust the distance to 0.5mm between cut thread, and then tighten the screw.
b)Loose the steed screw of cut thread solenoid circumrotate link, use hand to turn the cut thread solenoid circumrotate link and move the core axis loop according to arrow head direction.
c)When cut thread solenoid circumrotate link come back,

[Notice]
If the position is not proper, it could occur the speed becomes to reduce, let sewing effect no well.

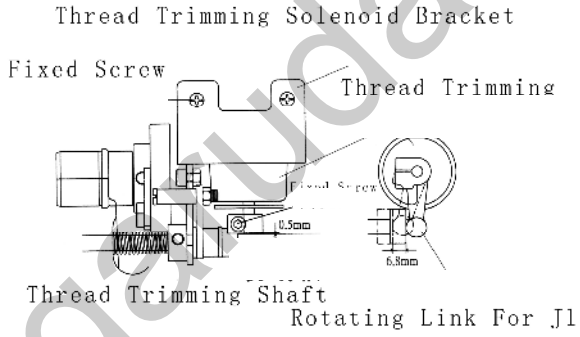


Fig. 35

F. Adjusting the movable knife and the fixed knife
a). When needle board stops upside, the following data by movable knife and needle board hole distance A use cut thread pole adjust part.
b)Use fixed knife screw to adjust the distance to following data between needle board cover and fixed knife.
c)After adjustment, ensure the cutter position by running the thread cutting device manually.

[Notice] If the position is not proper, thread cutting failure occurs or there will be less thread end left.

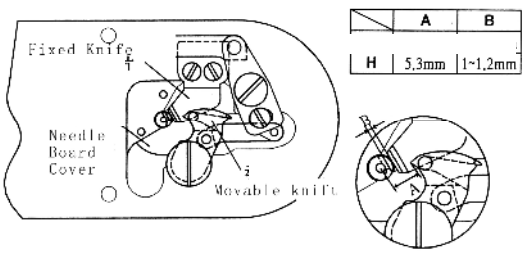


Fig. 36

**11. Adjusting the manual pulley**

a) Align Gear Wheel (B) with the section of the manual pulley shaft, then tighten the screw.
b)After Gear (A) meshing with Gear (B), tighten the screw.
c)When the roller is aligning with the section of the manual pulley shaft, in order to reduce the clearance between Gear (A) and Gear (B), move the shaft in the direction of the arrow and perform adjustment.

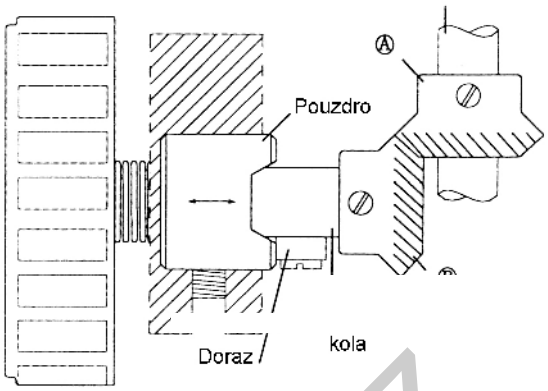



Fig. 37

**12. Adjusting thread take-up device**

a) Adjust the amount of hook thread by using the original position of the thread take-up adjusting plate. If the amount is too much, loosen the screw of the thread take-up adjusting plate and turn it in the direction of A, if too less, turn it in the direction of B.

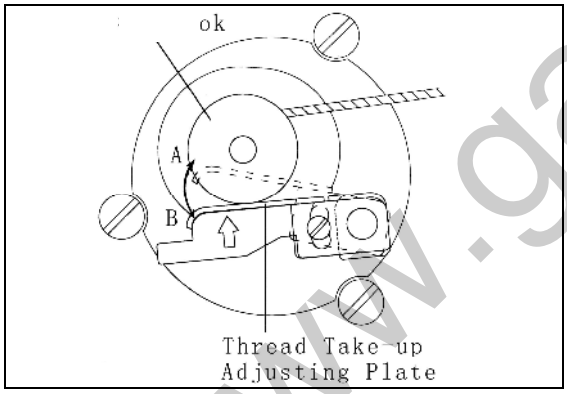



Fig. 38

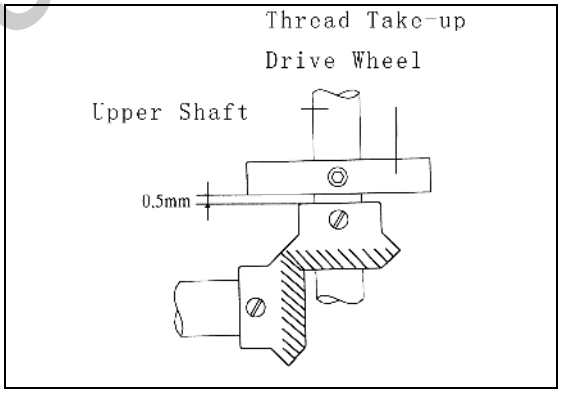



Fig. 39

b) Adjust the position of the drive wheel to make it keep 0.5mm clearance from the gear of manual pulley, then tighten the set screw.

**13. X-Y X-Y origin setting**

A. X-axis origin setting

a)Remove the X-cover of lower feed plate.

Move the upper feed plate along X-axis to keep it pointing to the center.

b) As the figure shows, loosen the two screw on the detecting sensor holder, locate the origin detecting plate of X-axis in the centre of the sensor. Then tighten it with a cross screw driver.

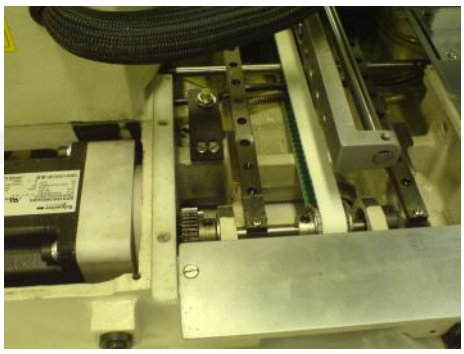


Fig. 40

B.Y-axis origin setting

a)Remove the cover of Y- step motor..

b)Move the upper feed plate along Y-axis

c)Loosen the set screw as the figure shows, to locate the origin detecting plate of Y-axis in the center of the origin detecting sensor, then tighten it with a L-type wrench.

## 8) Trouble shooting

| No. | trouble | cause | remedy |
|---|---|---|---|
| 1 | Machine starts and runs abnormally | The fuse of power or circuit is short-cut | Make sure if the fuse is short-cut of the main motor driver in monitoring box |
| | | The feed bracket X or Y is beyond its limit | Move the feed bracket to its normal position(within the restrictive range) |
| 3 | state of hook thread | The threading is wrong | Replace the needle |
| | | Installation of the needle is not right.( the height and direction of the needle) | Re-install the needle |
| | | The needle is damaged (bent, needle hole becomes coarse, needle point worn or deformed) | Replace the needle |
| | | The tension between needle thread and bobbin thread is too large | Adjust the tension |
| | | The tension of thread take-up spring is too large and the motion amount is too big | Adjust the tension and the motion amount |
| | | The thread adjusting hole of the spring on bobbin case is with fissure | Replace the spring on bobbin case |
| 4 | crochet hook | The needle is damaged(bent, needle hole becomes coarse, needle point worn or deformed) | Replace the needle |
| | | The installation of the needle is not in line with the requirements | Replace with the needle of correct size |
| | | Friction between the needle and bobbin | Adjust the space between the needle and the bobbin |
| 5 | Trimming error occurs. | The cross tension between the moveable knife and the fixed knife is loose | Adjust the tension of fixed knife |
| | | The blades of the movable knife and the fixed knife are worn. | Replace the cutter |
| | | The position of the trimming cam is not proper | Adjust the trimming cam. |
| 6 | Thread skips or falls off the needle eye at starting | The needle is bent | Replace the needle |
| | | The thread is not conformed with the needle size | Replace the needle |
| | | The installation of needle is not proper | Re-install the needle |
| | | The needle is not in harmony with the motion of bobbin | Re-adjust it |
| | | wider distance between need slot and need piece | Re-adjust it |

| | | | |
|---|---|---|---|
| | | The tension of thread take-up spring is too large and its working volume is too big | Adjust the tension and the motion amount |
| 7 | not well of thread tension | The tension of needle thread is not enough | Adjust the tension of needle thread |
| | | The tension of bobbin thread is not enough | Adjust the tension of bobbin thread |
| | | The motion between needle and bobbin is in disharmony | Re-adjust it |
| 8 | not well of bread thread check | The thread take-up spring is not well linked with thread sensor | Clean the thread take-up spring and the sensor or adjust the thread take-up lever |
| | | The wire of thread sensor is not well linked | The tension of spring |

## 9) GPS-1507, 2010, 3020

### 1. How to use the pedal switch

A. If you step on the middle pedal the left upper feed descends to hold sewing material.
B. If you step on the right pedal the right upper feed descends to hold sewing material.
C. If you step on the left pedal the machine start sewing.

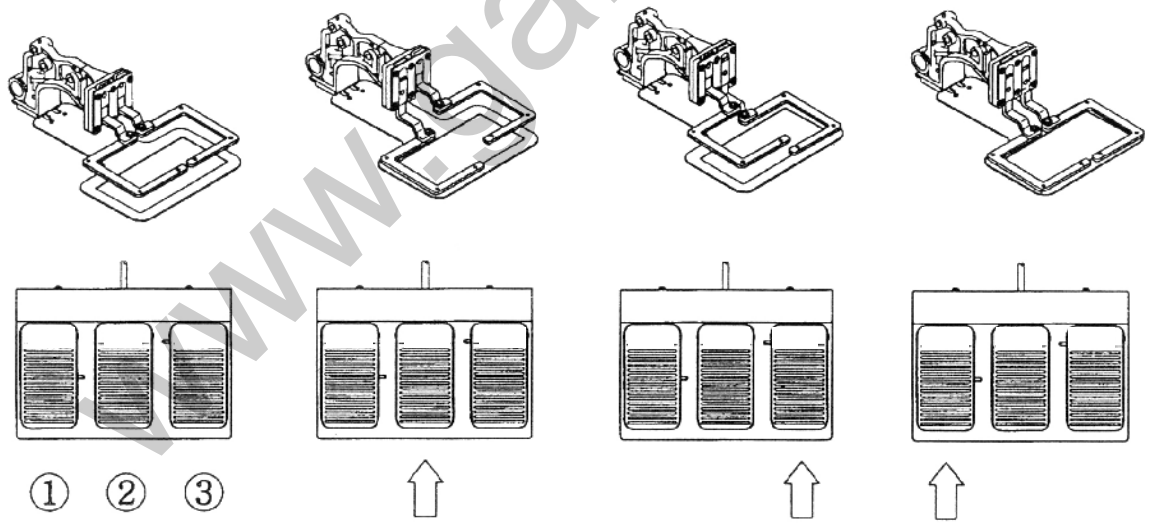



Fig. 41

## Table of max sewing speed

**1507, 2010**

| Line stitch | | Zigzag stitch | |
|---|---|---|---|
| speed | max stitch lenght | speed | max stitch lenght |
| 2800 | 2,5mm | 2000 | 2,5mm |
| 2800 | 3mm | 2000 | 3mm |
| 2800 | 3,5mm | 1800 | 3,5mm |
| 2500 | 4mm | 1600 | 4mm |
| 2000 | 5mm | 1500 | 5mm |
| 1600 | 6mm | 1200 | 6mm |
| 1500 | 7mm | 1000 | 7mm |
| 1000 | 8mm | 800 | 8mm |
| 900 | 9mm | 700 | 9mm |
| 800 | 10mm | 700 | 10mm |
| 700 | 11mm | 600 | 11mm |
| 700 | 12mm | 600 | 12mm |
| 700 | >12mm | 600 | >12mm |

**3020**

| Line stitch | | Zigzag stitch | |
|---|---|---|---|
| speed | max stitch lenght | speed | max stitch lenght |
| 2300 | 2,5mm | 2000 | 2,5mm |
| 2300 | 3mm | 2000 | 3mm |
| 2000 | 3,5mm | 2000 | 3,5mm |
| 1800 | 4mm | 1700 | 4mm |
| 1500 | 5mm | 1500 | 5mm |
| 1300 | 6mm | 1300 | 6mm |
| 1100 | 7mm | 1000 | 7mm |
| 1000 | 8mm | 900 | 8mm |
| 1000 | 9mm | 800 | 9mm |
| 900 | 10mm | 700 | 10mm |
| 800 | 11mm | 500 | 11mm |
| 800 | 12mm | 500 | 12mm |
| 800 | >12mm | 500 | >12mm |