

User's Manual

GARUDAN[®]

GF-105 Serie



ANITA B, s.r.o.

Hliníky 2068

680 01 Boskovice

Czech Republic

tel: +420 516 454 774

+420 516 453 496

fax: +420 516 452 751

e-mail: info@anita.cz

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1) SPECIFICATIONS

Model	Usage	Max speed	Max stitch length	Needle system and size	Presser foot (manual/knee)
GF-105-143 LM	light-medium	5.000	5mm	134R(65-110)	6/13mm
GF-105-147 LM	light-medium	5.000	5mm	134R(65-110)	6/13mm
GF-105-143 H (HR)	heavy	3.500	8mm	134R(110-200)	6/13mm
GF-105-147 H (HR)	heavy	3.500	5mm	134R(110-200)	6/13mm

Netto weight :	GF-105-103 LM	32 kg
	GF-105-143 H	32 kg
	GF-105-107 LM	47kg (head) 5kg (control box)
	GF-105-147 H	47kg (head) 5kg (kontrol box)

Measurement :	GF-105-103 LM	24x48x61cm
	GF-105-143 H	24x48x61cm
	GF-105-107 LM	25x58x68cm (head) 23x31x40cm (control box)
	GF-105-147 H	25x58x68cm (head) 23x31x40cm (control box))

GENERAL DESCRIPTION AND USAGE:

Single needle high-speed industrial sewing machine with lower drop feed.

2 Safety rules for machines

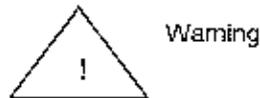
Safety labels in the manual are categorized into danger, warning and caution.
Failure to follow the safety rules may result in physical injuries or mechanical damages.
The safety labels and symbols are defined as follows.

[The meaning of the safety marks]



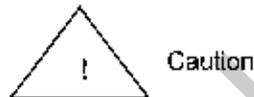
Danger

Instructions here shall be observed strictly.
Otherwise, the user will be killed or suffer severe physical injuries.



Warning

Instructions here must be observed, or the user could suffer fatal or severe physical injuries.



Caution

Instructions here should be observed, or the user could face physical injuries or mechanical damages.

[The meaning of the safety marks]



This mark means a 'must-not.'



This mark means a 'must for safety.'



This mark means that an electric shock may be caused if the instruction is not followed properly.

1-1) Machine mobilization: Only personnel with a full understanding of the safety rules should move the machines. The following directions must be observed when delivering the machines.



Danger

- a. At least two or more people should move the machine.
- b. Before delivering the machine, thoroughly wipe off the oil on the machine to prevent accidents.

1-2) Machine installation: Physical damages such as functional difficulties or breakdowns may occur depending on installation conditions of the machines. Be sure to heed the following conditions.



Caution

- a. Remove the packing from top to bottom.
- b. Install a climate controller and clean it regularly to prevent dust and moisture build-up from contaminating and corroding the machines.
- c. Keep the machines away from direct sunlight.

- d. Keep a minimum distance of 50cm between the machine at both sides and backside and the wall to secure sufficient space for repair.
- e. Do not operate the machine near areas with danger of explosion. Refrain from running the machine in the vicinity of risky places, e.g., where a large quantity of aerosol-spraying products or oxygen are handled, unless specific quarantees are given otherwise for the operation of the machine to prevent explosion at such places.
- f. The user should install an illuminator in the work area for the machine not come supplied with any lighting apparatus due to the specific features of the machine.

[Note] Details of the machine installation are laid out in section 2) Installation.

1-3) Troubleshooting: When the machine is in need of repair, only our authorized service technicians must handle it.



Danger

- a. Before cleaning and repairing the machine, shut off the power supply and wait four minutes for the machine to discharge completely.
- b. No part of the machine or specifications may be modified without prior consultation with our company. Any such modification could risk safe operation of the machine.
- c. In case of repair, replace only with original Garudan parts from Anita.
- d. After repair, put safety covers back on the machine.

1-4) Machine operation: GF-115 series are intended to be used for industrial purposes for sewing textiles and other similar materials. Carefully study the following instructions before operating the machine.



Caution

- a. Read the manual thoroughly and understand the instructions fully before use.
- b. Put on proper safety garments.
- c. While the machine is in motion, keep your hands or any part of your body away from moving parts, e.g., needle, hook, thread take-up spring and pulley, etc.
- d. Do not remove any form of safety covers while the machine is in use.
- e. Be sure to connect the ground (earth) wire.
- f. Before opening electric boxes such as the control box, shut down the power supply and make sure the power switch is in "off" mode.
- g. Stop the machine before threading the needle or checking after sewing work is finished.
- h. Never turn the power switch on with the pedal down.
- i. Do not use the machine if the cooling fan is clogged. Clean the air filter embedded in the control box at least once a week.
- j. Keep the machine away from strong electromagnetic fields such as high-frequency welding machines.



Caution

Always start the machine with safety covers in place since fingers or hands could be injured or cut off by the belt. Turn off the power switch when conducting a regular check on the machine.

1-5) Safety device:



Caution

- a. Safety label: Safety instructions for machine operations
- b. Thread take-up spring cover: A device designed to prevent the human body from coming in contact with the thread take-up spring
- c. Belt cover: A device intended to avoid potential risks of getting hands, feet or clothes jammed by the belt
- d. Finger guard: A device built to keep fingers away from the needle

3) INSTALLATION

1. Before operation



Warning

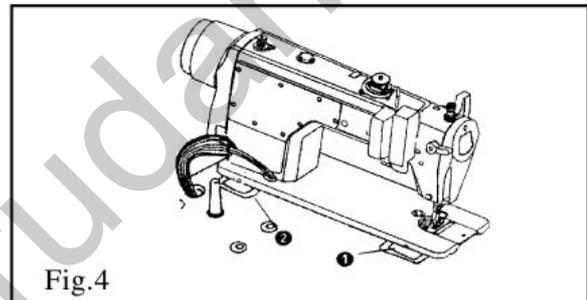
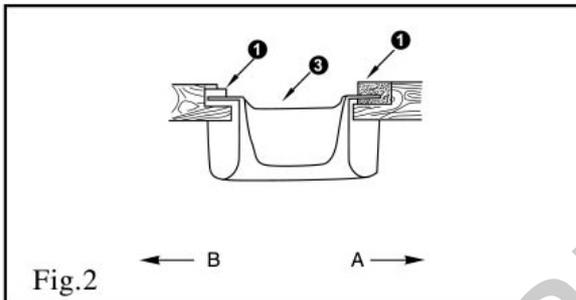
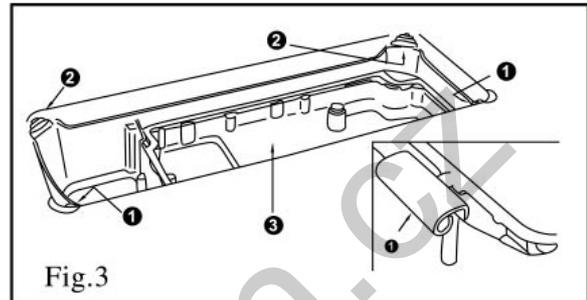
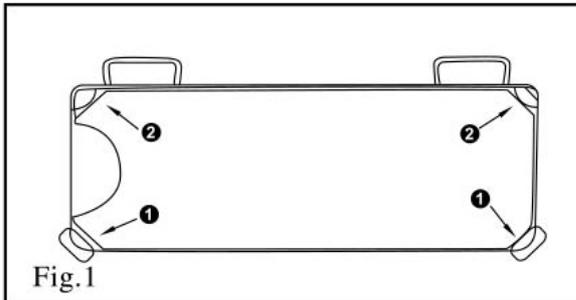
- ⇒ The machine must be installed by a trained technician only.
- ⇒ Any electrical wiring must be performed by a qualified technician or agent.
- ⇒ The machines weigh over 33 kg. As such, two or more people should carry out the installation.
- ⇒ Plug in only after the installation is complete. If the operator mistakenly steps down on the pedal with the plug in, the machine will start automatically and can cause physical injuries.

- ⇒ Connect the ground (earth) wire.
An unstable connection may result in an electric shock or a malfunction.
- ⇒ Use both hands when bending the machine backward or returning it to the normal position.
Using only one hand can lead to physical injuries due to the weight of the machine.

2. Machine head

1) Machine head

Oil tray should be put at the four corners of the slot in the table plate. Fix two arm cushion 1 to the A side of oil tray 3. Fix the two stand bases 2 to the B side of oil tray 3, then fix the oil tray 3 (Fig. 1, 2). Plug the hinge 1 into hole of bed plate, put the machine head on the table plate, hinge at the sink place and then fix the machine head on cushions of the four oil tray corners (Fig. 3,4)



3. Lubrication

A) Installing Magnetic Chip Remover

Attach the magnetic chip remover that is in the accessory box to the oil pump inside the bed.

- * Do not use the magnet for other purposes. Use of the sewing machine without the magnet may cause malfunction and has a bearing on the machine's durability.

B) Lubricating the oil pan

- a) Fill the lubricant up to the „HIGH“ mark.
- c) If the oil in use is down to the „LOW“ mark, fill in to „HIGH“ immediately.

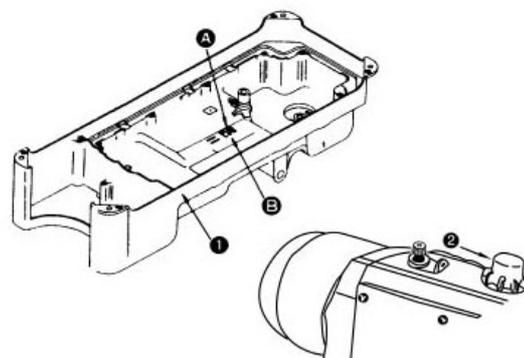


Fig.5

4. Program unit

- A. Installing automatic knee-lifting solenoid on machine head
Use five fixing screws (4) to Stach the solenoid on the back side of machine head (Fig.6)
- B. Assembling of back cover
When the machine is equipped by manual knee-lifter, fasten the briket tightly using the free fixing screws in the back lid of the machine (Fig.6)
- C. Assembling of kontrol panel
Use four fixing screws (3) to fix the bracket (2) onto the control panel. Using the two screws (4) to Stach the assembly on the top of machine head. (Fig.6,7)

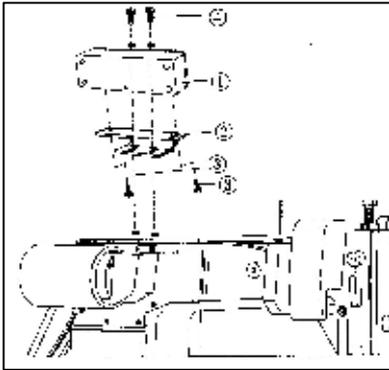


Fig.6

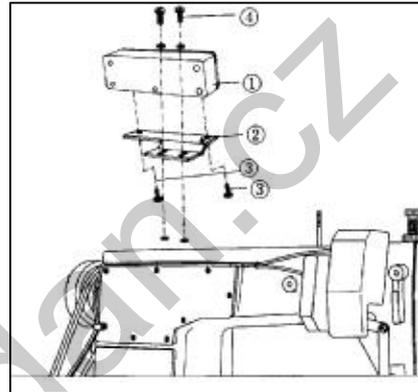
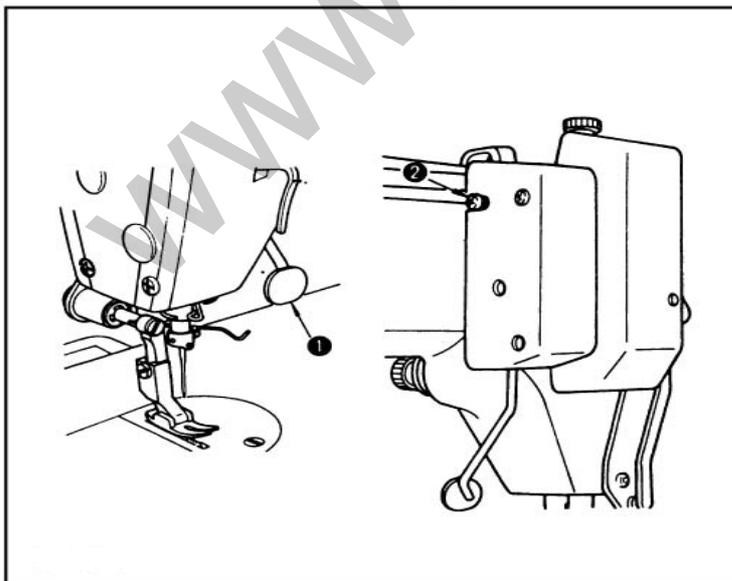


Fig.7

5. Function of reverse feed stitching mechanism

When the switch lever is pressed (1), the machine perform reverse feed stitching. The machine performs reverse feed stitching as long as the switch lever is held depressed. Loosen screw (2) and move the switch lever up or down to adjut its height.(fig.8)

Fig. 8



4) CONTROL AND ADJUSTMENT OF THE SEWING MACHINE

1. Needle Insertion

With the needle groove (1) facing left, insert the needle tip into the upper end of the stoper hole (2) and tighten the needle with the clamp screw (3). (Fig.9)

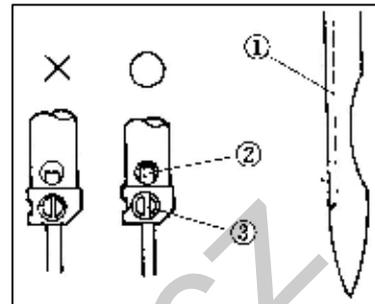
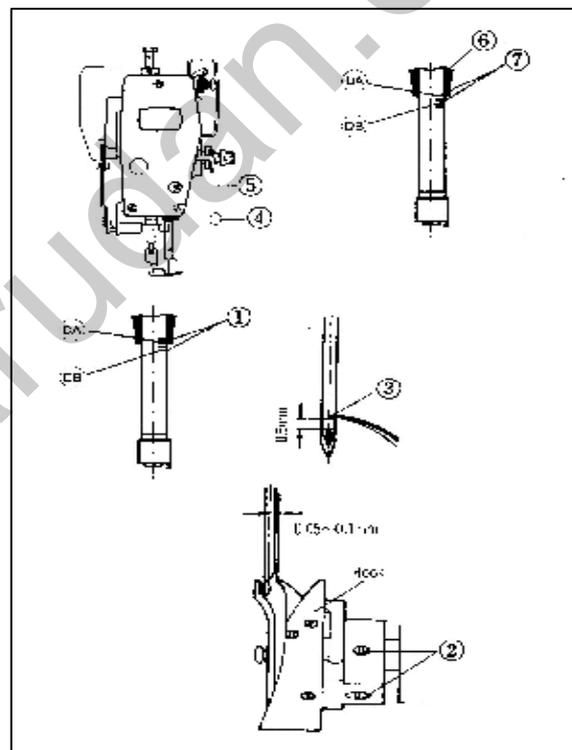


Fig.9

2. Needle Bar Adjustment

As is shown in Fig. 10, unscrew the rubber plugs (4) in the needle bar adjustment hole that is on the face plate and turn the pulley so that the needle bar is in down-stop position. Then turn loose the clamp screws (5) on the needle bar handle, move the needle bar such that the lowest carved sign on the needle bar (7) is in line with the bottom of the needle bar lower bushing (6) and tighten the clamp screws of the needle bar handle. Lastly plug in the rubber plugs (4). (Fig.10)

Fig.10



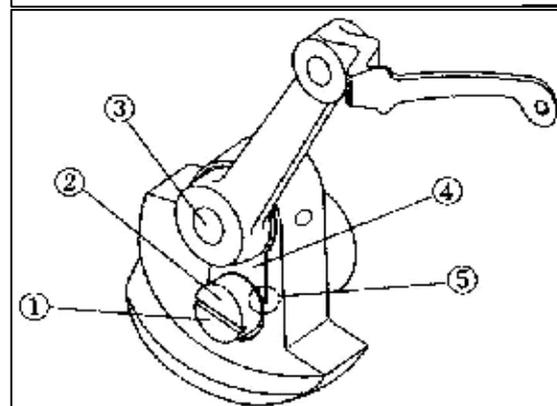
3. Timing adjustment of Needle and Hook

As can be seen in Fig.10, align the bottom of the needle bar bushing (6) with the hook fixed position sign (1) marked on the needle bar and loosen the three hook fixing screws (2). Turn the hook so that the edge of the hook (3) is in line with the needle center. Adjust such that the distance between the inside of the groove on the needle side and the edge of the hook (3) is 0,05-0,1 mm, then tighten the three fixing screws (2) again. (Figobr.10)

4. Lubrication Adjustment of Thread Take-Up Lever

Oil flow is at its maximum when the mark (2) on the head of the oil flow control pin (1) and the center of the hole (3) on thread take-up lever crank shaft is directly aligned (Fig.11)

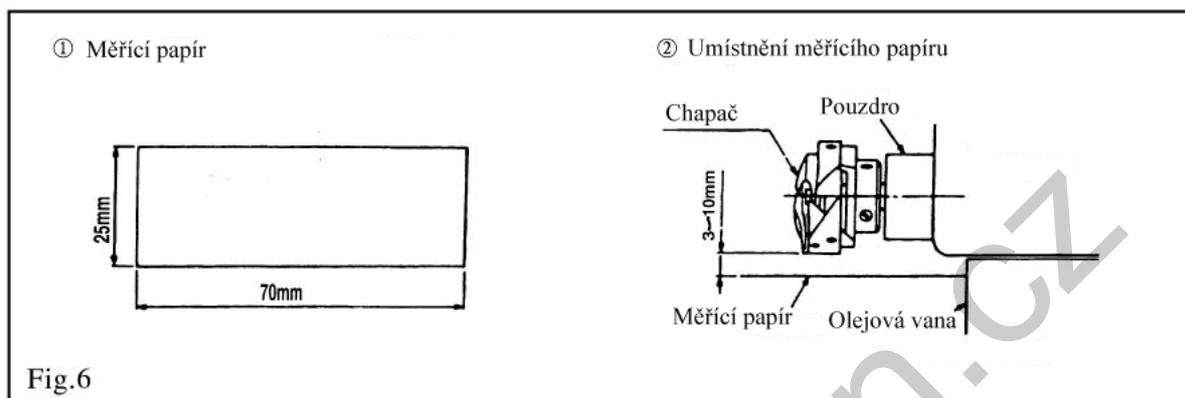
Fig.11



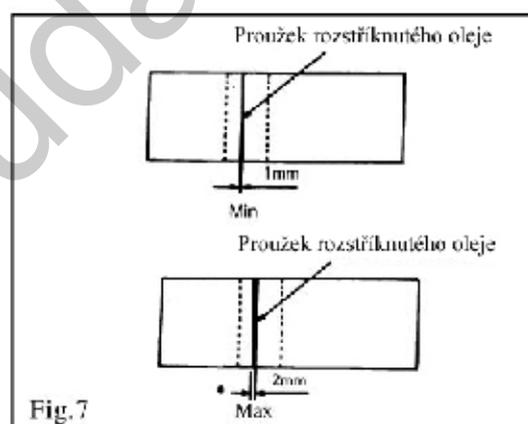
5. Lubrication Adjustment of Hook

A. Checking the oil supply level of Hook

- a) After racing the sewing machine for three minutes, secure the oil flowchecking paper as shown in Fig and run the machine for about five seconds. Then check the oil tape marked on the paper.

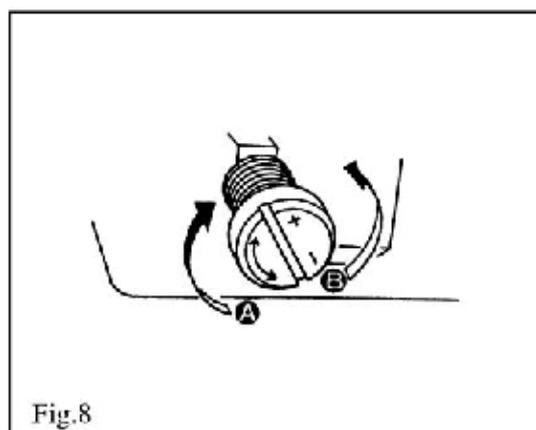


- b) Check the oil supply level three times. The appropriate level of oil is when the oil level neither exceeds the maximum amount nor falls below the minimum level. (Insufficient oil would jam the hook, whereas excessive oil would contaminate the sewing material with oil)



B. Adjustment of the Oil Supply Level

Turn the oil flow adjusting screw (1) in the lower shaft front bushing in a clockwise direction for more oil flow. Turn it counterclockwise for less oil.



6. Adjusting the Needle Stop position

1. Needle position after thread trimming.

After switch on the machine, stop the machine as the needle goes to its highest position and then the distance between the needle plate upper plane and the needlepoint is: middle heavy cloth: 10-20mm (the red point A on the back cover aligns with the red point B on the upper wheel); the heavy cloth: 10-14mm (the red point A aligns with the point E on the upper wheel).

If you want to change the needle position, loose the two fixed screws 1 and then you can adjust it in the long slot.

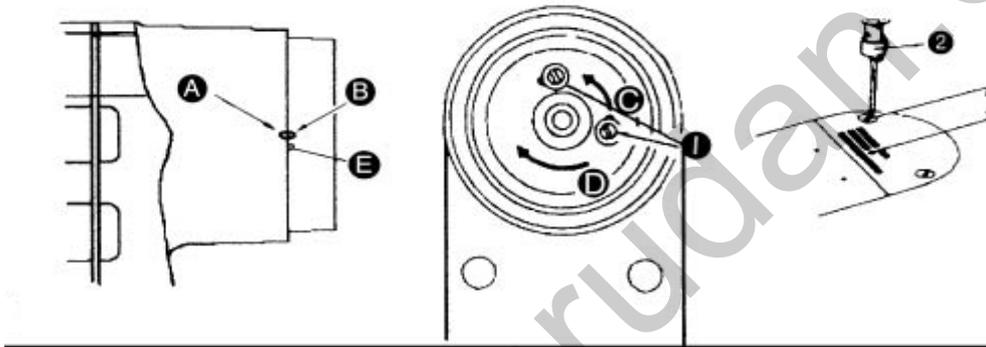
- ① If the screw moves to C, the needle bar ② stops at its highest position;
- ② If the screw moves to D, the needle bar stops at a lower position.

Remarks:

When loose the screw ①, please do not set up the machine; besides, just loose the screw ① not take it off.

2. The needle's lower position

Precaution: Don't adjusting the needle's stop position.



Obr. 13

7. Inserting Lower Thread and Tension Adjustment

- A. After placing a bobbin (2) in a bobbin case (6), push the thread through the thread groove (3) and hook it under the tension adjusting plate spring (4). To tighten the lower thread, turn the tension adjusting screw (5) clockwise. Turn it counterclockwise to loosen. Adjust the tension of the lower thread so that it will fall slowly by gravity when the bobbin case (1) is dropped while holding the end of the thread.
- B. Hold the bobbin case handle (6) and insert it into hook. Pull the handle (6) to remove. (The bobbin will fall out if the handle is let go). (Fig.14)

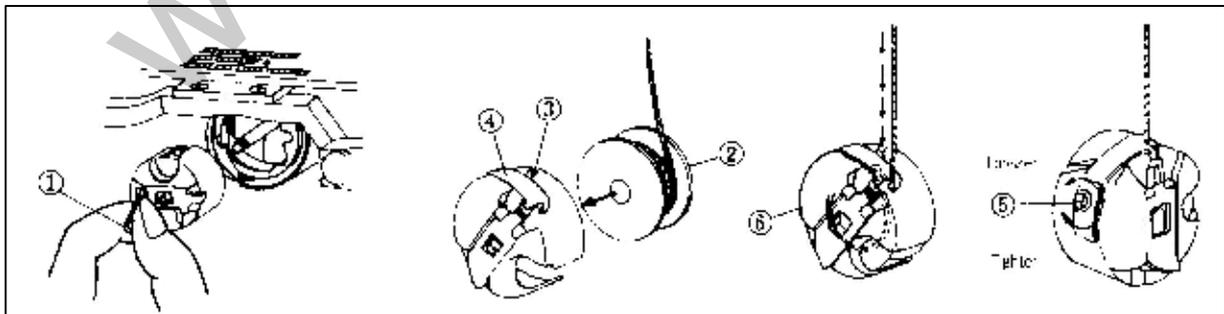


Fig.14

8. Routing upper thread

Place the thread take-up lever at the highest position and route the upper thread in the order indicated in Fig.15.

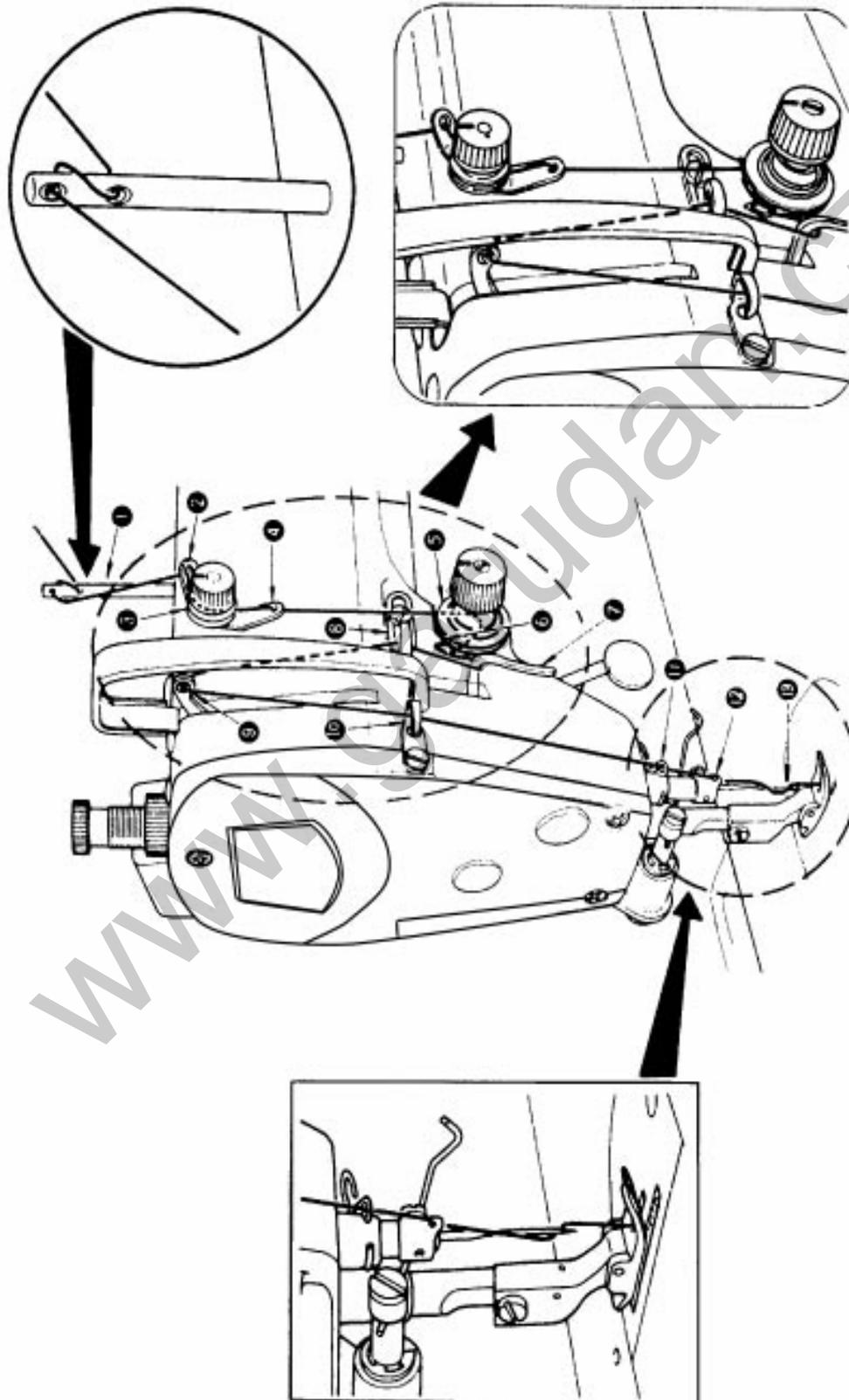


Fig.15

9. Upper Thread Adjustment

A. Main thread adjustment device

The tension of the upper thread gets tighter if the tension adjusting nut (1) as in Fig. 16 is turned in a clockwise direction and it gets looser when turned in the opposite direction. The tension of the thread should differ according to the sewing conditions which depend on the material, thread, stitch length etc.

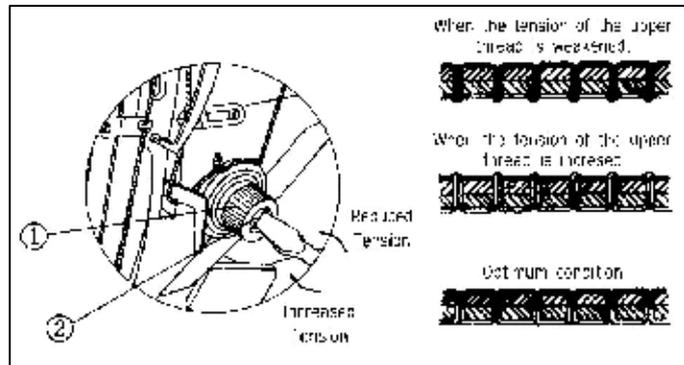


Fig.16

B. Tension adjustment of thread take up lever spring

As in Fig 16, use a driver in the thread adjustment shaft groove (2) to adjust the spring tension. The thread take up lever spring grows tighter when the driver is turned clockwise and looser when turned counter clockwise.

C. Auxiliary thread adjuster

Turn the auxiliary thread tension adjusting nut (1) in clockwise direction to make the remaining thread length on the needle after trimming shorter and in counterclockwise direction to make it longer, as shown in Fig.17. The appropriate length of the upper thread remaining after trimming is 30mm - 40mm.

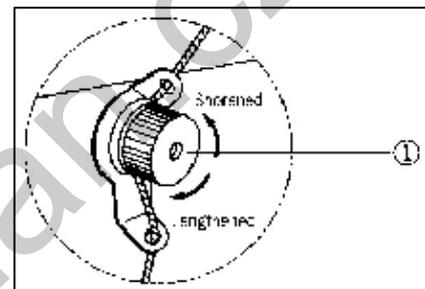
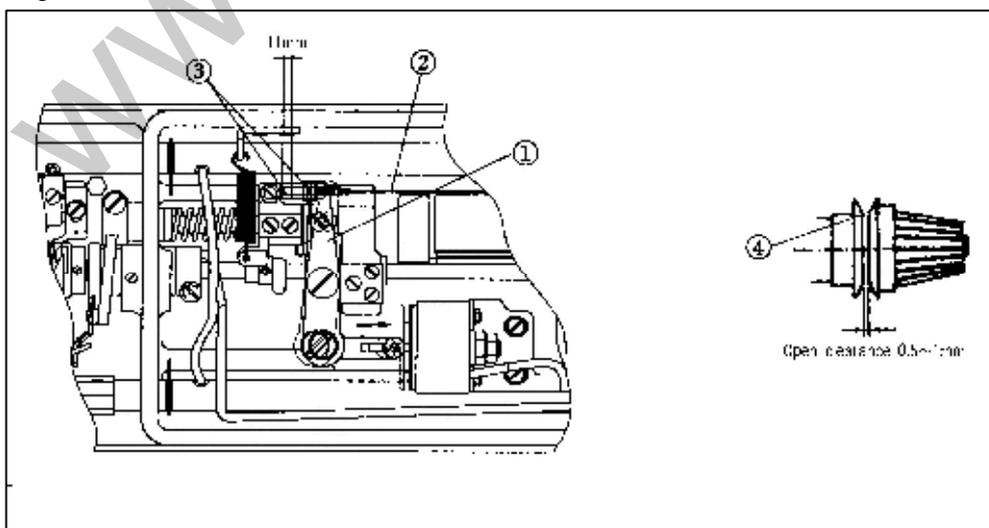


Fig.17

D. Thread release control

The thread release takes place simultaneously with the movement of the trimming solenoid. As seen in Fig.24, the amount of thread release is controlled by moving the fixed position of the thread release wire (2), which is connected with the clutch lever (1), left and right. Loosen the two fixing nuts (3) and pull the cable wire (2) to the left. Then fasten the nuts (3) to release the thread to a large extent. If the cable wire is pushed to the right and the nuts (3) tightened, the thread release happens on a lesser scale. After adjustment, tighten the nuts (3) once again and check whether the opening of the thread guide plate (4) of the thread adjuster is about 0.5-1 mm when the thread releaser is in operation. There should be no opening when the thread releaser is not in operation. The thread guide plates (4) should be touching back to back.



Obr.18

10. Height and Tension Adjustment of Presser Foot

A. As in Fig.19, remove the rubber plug (2) in the face plate and place the presser foot (3) on the needle plate. Then, loosen the presser bar fixing screw (4) and adjust the height of the presser bar. The presser foot lifter (3) will fall when the presser bar is lifted and rise when the presser bar is moved down. Move the presser foot lifter (5) manually to place the bottom face of the presser foot 5,5 mm above the top face of the needle plate and tighten the presser bar fixing screws firmly.

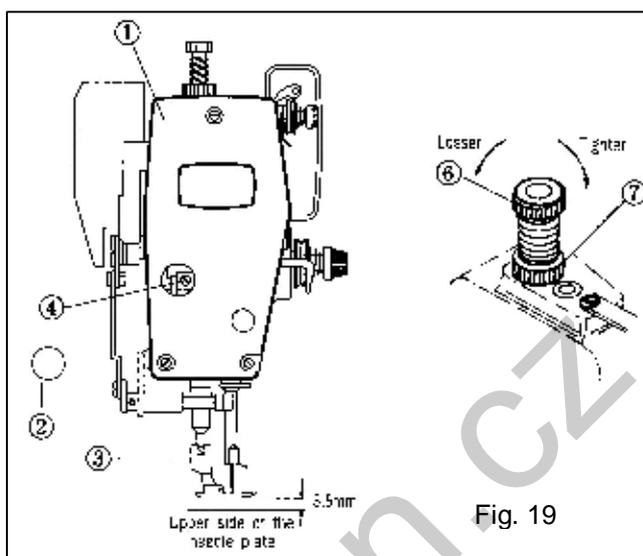


Fig. 19

B. The tension of the presser foot will grow stronger when the tension adjusting screw (6) is turned clockwise and weaker when turned counterclockwise. Make sure to screw in the fixing nut (1) after adjustment. (Fig.19)

C. Loosen set screw (1) and adjust the presser bar height or the angle of the presser foot. After adjustment, securely tighten the setscrew.

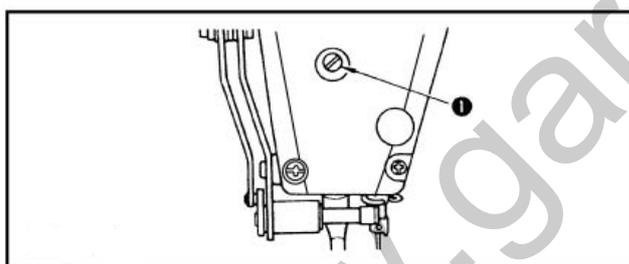
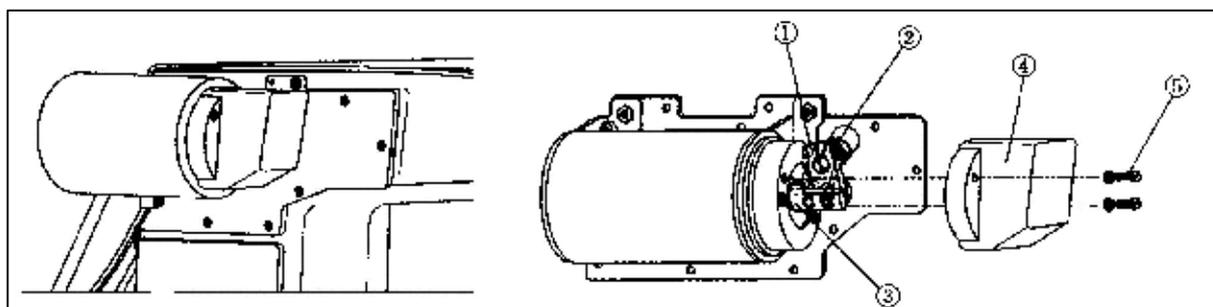


Fig. 19a

11. Adjustment of Automatic Knee-Lifter

An automatic knee-lifter will be attached to the sewing machine at point of delivery. The lifting amount of the presser foot when automatically lifting the knee is controlled by the automatic knee-lifting solenoid shaft crank (1). First, loosen the solenoid cover fixing screw (3) and remove the solenoid cover (2). If the solenoid shaft (5) is moved left and the fixing screw (4) is tightened when the solenoid crank shaft fixing screw (4) is loose, the amount of the presser foot grows smaller. If the solenoid shaft (5) is moved to the right, the lifting amount will grow bigger. Assemble the cover back after the adjustment is completed. (the presser foot lifting amount for the automatic knee-lifter will be set to 13 mm by default at point of delivery).

Fig.20



12. Stitch length Adjustment

As is shown in Fig.21, the number marked by the stitch adjusting dial (1) signifies the stitch length in mm units. Move the dial sideways to set it to the desired stitch length (Turn it in clockwise direction and the stitch length will decrease while turning it counterclockwise will increase the stitch length).

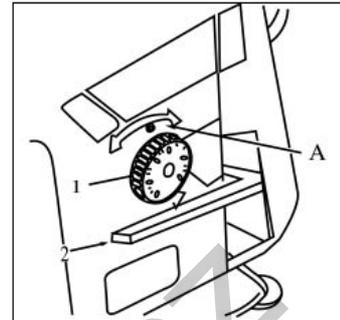


Fig.21

13. Height and Inclination Adjustment of Feed Dog

A. Height adjustment of the feed dog

The height of the feed dog is adjusted by moving the lifter crank (1) after the lifter crank fixing screw (2) is loosened. The standard height from the top face of the needle plate to the top of the feed dog when the stitch length dial is at its maximum and the feed dog is at its highest point is shown in Fig.22.

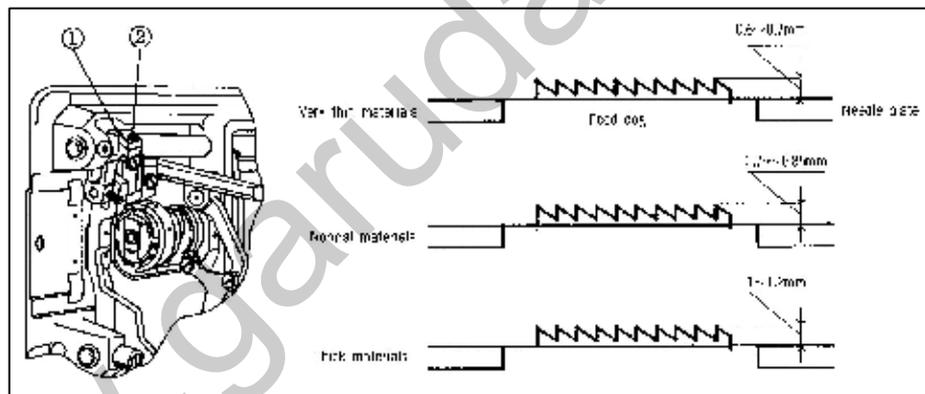


Fig.22

B. Inclination adjustment of the feed dog

- a) The standard tilt of the feed dog is obtained when marker dot (A) on the feed bar shaft is aligned with marker dot (B) on feed rocker (1). (Fig.23)

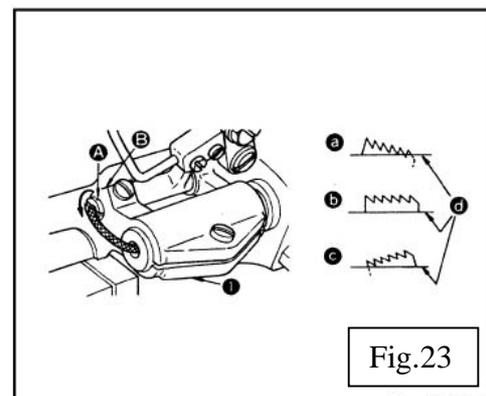


Fig.23

14. Feed Cam Adjustment

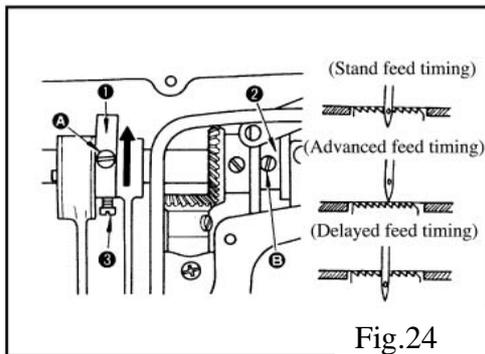


Fig.24

- 1) To obtain the standard feed timing align setscrew A on feed eccentric cam ① with setscrew B on main shaft thrust collar ②.
- 2) To make adjustment, loosen two setscrews ③ to release the feed eccentric cam, properly position the eccentric cam. Then retighten the setscrews.
- 3) To advance the feed timing in order to prevent uneven material feed, move the feed eccentric cam in the direction of the arrow.
- 4) To delay the feed timing in order to increase stitch tightness, move the feed eccentric cam in the opposite direction for the arrow.
- 5) Be careful not to move the feed eccentric cam too far, or else needle breakage may result.

15. Timing adjustment of Trimmer

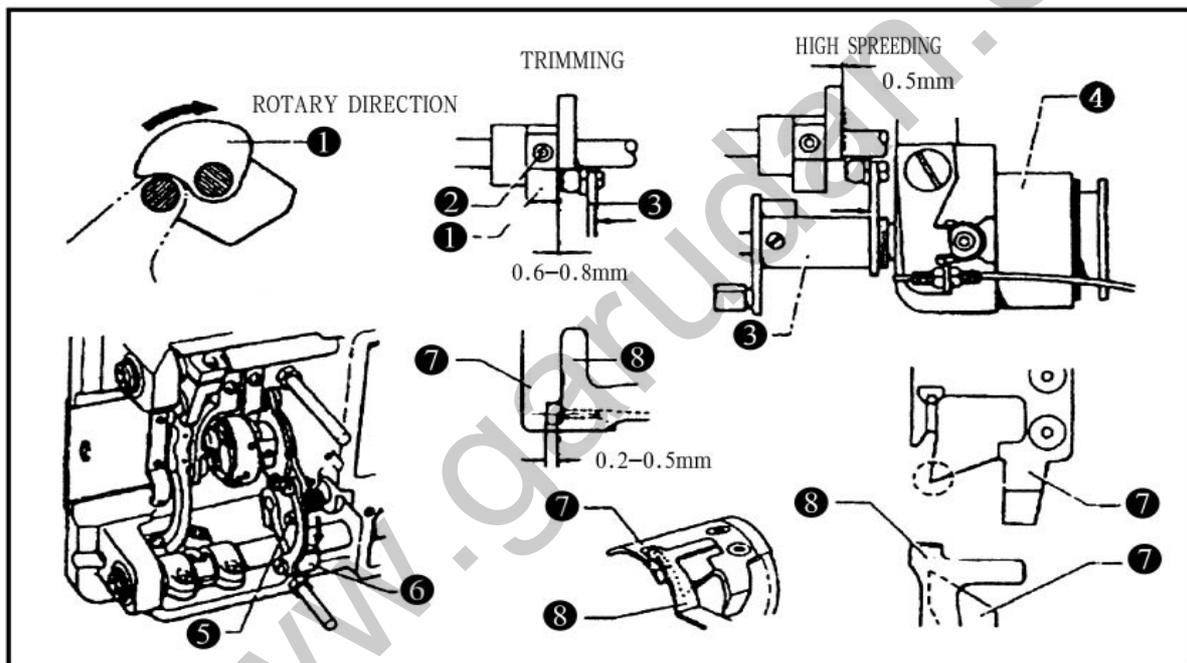


Fig.25

A. Adjusting the position of the thread trimming cam

If you run the handwheel of the machine, the needle bar goes from the bottom up to 5 mm, then the thread trimming solenoid (4) is pressed to impel the roller ball touches to the concave of the thread trimming cam (1). Then use the position screw (2) to tighten it in casual. And then replace the thread trimming solenoid (4), while loose the csrew (2) to adjust the cam (1), the clearance of the end plane between the cam and thread trimming driving shaft is 0,5 mm.

B. Adjusting the position of the counter knife and moving knife.

When the head of the thread trimming driving shaft (3) exceeds the cam, the mesh between the front plane of the counter knife (8) and the edge of the moving knife (7) is 0,2-0,5 mm. If they are not meshed, moves the knife shaft crack rod (6) before the thread trimming driving shaft exceeded the cam (1), the front plane of the counter knife (8) and the edge of the moving knife is meshed, the tighten the screw (5).

16. Adjustment the Thread Take-Up Stroke

- A. When sewing heavy-weight materials, move thread guide (1) to the left (in direction A) to increase the length of thread pulled out by thread take-up.
- B. When sewing light-weight materials, move thread guide (1) to the right (indirection B) to decrease the length of thread pulled out by the thread take-up.
- C. Normally, thread guide (1) is positioned in a way that marker line © is aligned with the center of the screw.

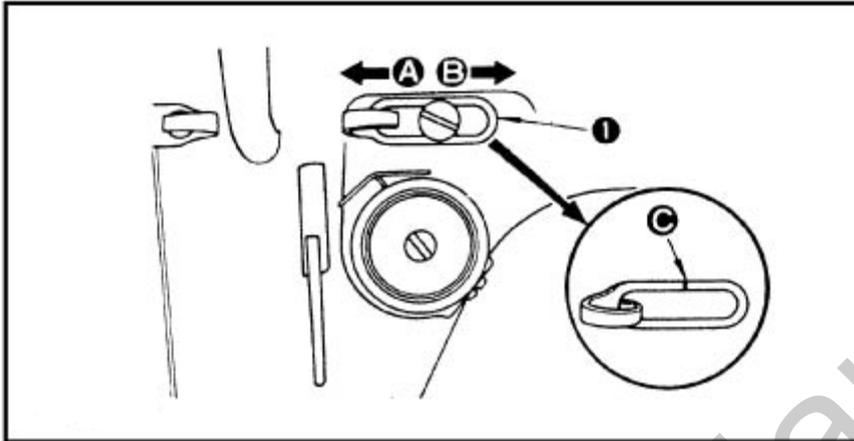


Fig. 28

17. Replacement of Movable Knife

To change the movable knife (1), turn the pulley manually to place the needle at the highest point. Then, remove the needle plate by unfastening the two movable knife fixing screws (2) as seen in Fig.29. Follow these instructions in reverse order to assemble.

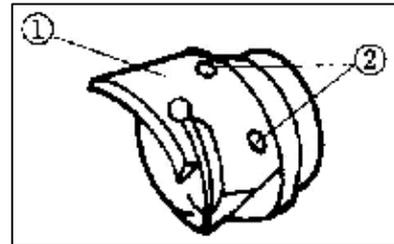


Fig.29

18. Replacement of Fixed Blade

- A. To change the fixed knife (1), loosen the inner spindle stopper fixing screw (2) as in Fig.30, remove the washer (3) and inner spindle stopper (4), then unfasten the fixed knife fixing screw (5). Follow these instructions in reverse order to assemble.
- B. If the edge of the fixed blade is worn, make sure to grind the knife edge with an oil grindstone as shown in Fig.31.

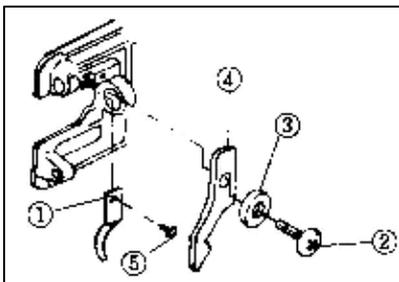


Fig.30

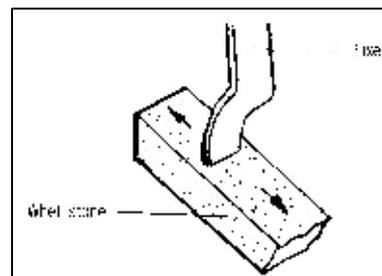


Fig.31

19. Adjustment of the Wiper

1. Positioning the wiper

Adjust the position of the wiper according to the thickness of the material sewn. The adjustment procedure is as follows:

a) Turn the handwheel in the normal direction of rotation to align white marker dot (1) on the handwheel with red marker dot (2) on the machine arm.

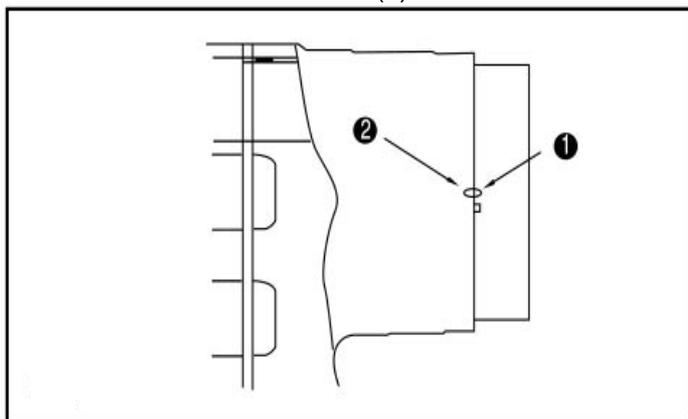


Fig. 34

b) Adjust the distance between the flat part of the wiper and the center of the needle to 1 mm. Tighten wiper adjust screw (5) so that the wiper is pressed and fixed by wiper collar (6).

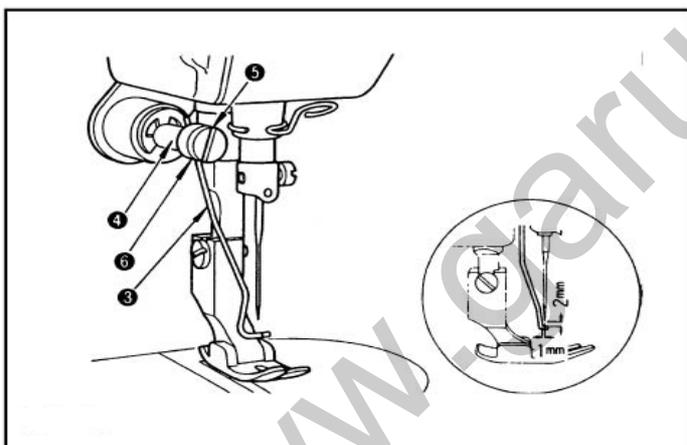


Fig. 35

c) When the wiper is unnecessary, turn wiper switch (7) OFF.

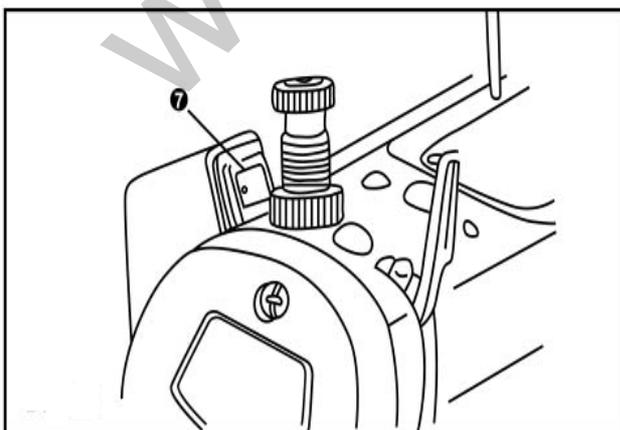


Fig. 36

20. Winding the Bobbin

Thread the bobbin winder and wind the bobbin thread onto the bobbin illustrated in the Fig. 37.

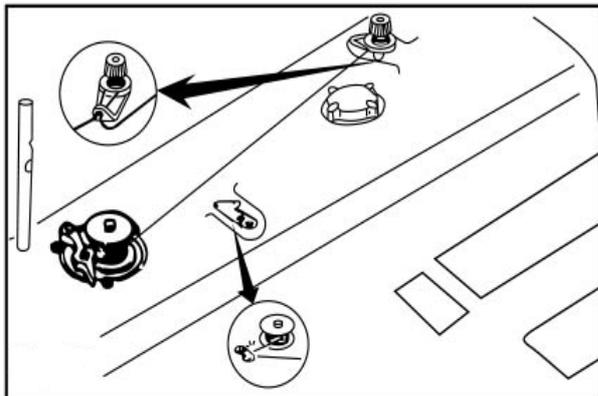
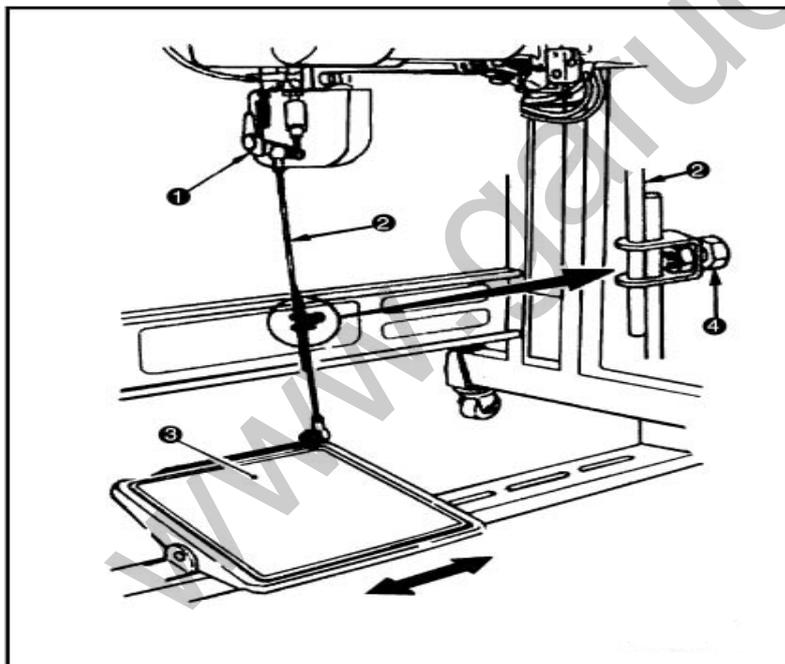


Fig. 37

21. Adjustment of the Pedal

Installing the connecting rod
 . Nastavení úhlu pedálu

Sklon pedálu lze jednoduše nastavit pomocí změny délky táhla. Povolte nastavovací šroub (4) a nastavte požadovanou délku táhla. Obr. 38



Obr. 38

22. Pedal Operation

The pedal is operated in the following four steps:

1. The machine runs at low sewing speed when you lightly depress the front part of the pedal (B).
2. The machine runs at high sewing speed when you further depress the front part of the pedal (A).
3. The machine stops (with its needle up or down) When you reset the pedal to its original position ©.
4. The machine trims threads when you fully depress The back part of the pedal (D).

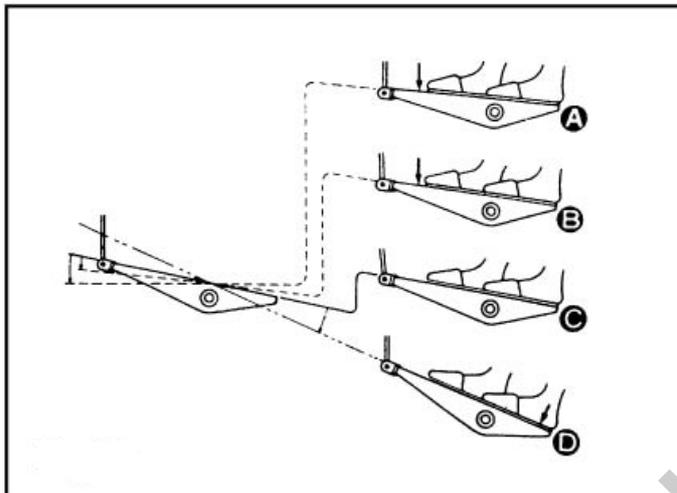


Fig. 39

23. Pedal Pressure and Pedal Stroke

1. Adjusting the pressure required to depress the front part of the pedal.
 - a) This pressure can be changed by altering the mouthing position of pedaling pressure adjust spring (1).
 - b) The pressure decreases when you hook the spring on the left side.
 - c) The pressure increases when you hook the spring on the right side.
2. Adjusting the pressure required to depress the back part of the pedal.
 - a) This pressure can be adjusted by using the regulator screw (2).
 - b) The pressure increases as you turn the regulator screw in.
 - c) The pressure decreases as you turn the screw cut..
3. Adjusting the pedal stroke.
 - a) The pedal stroke decreases when you insert connecting rod (3) into the hole left.

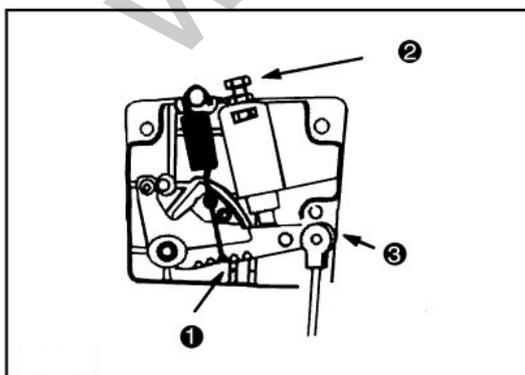


Fig. 40

24. Installing the Thread Stand

1. Assemble the thread stand unit and insert it in the hole in the machine table.
2. Tighten locknut (1) to fix the thread stand.
3. For ceiling wiring pass the power cord through spool rest rod (2).

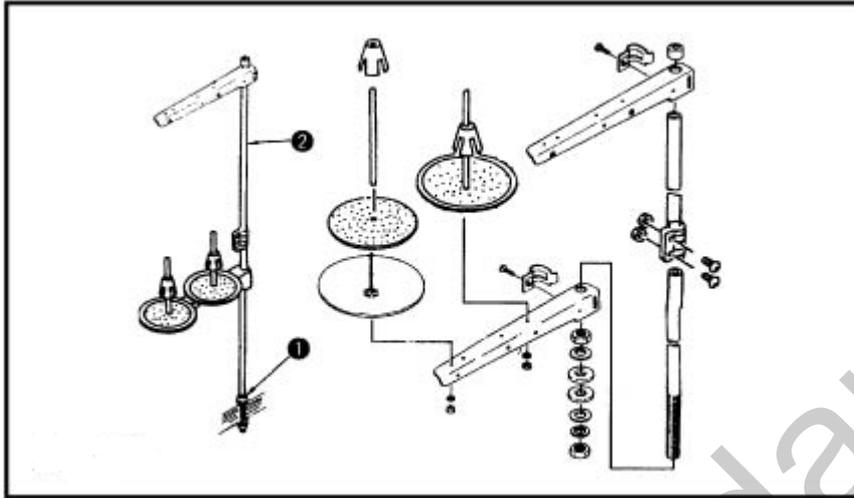


Fig. 41

5) NOTES

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6. SPARE PARTS LIST

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