

User's Manual

GARUDAN[®]

GP-137-448 MH/L33

GP-237-448 MH/L33



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1. SPECIFICATION

Model	Usage	Max speed	Max stitch length	Needle system & size	Presser foot stroke
GP-137-448 MH/L33	medium-heavy	2.500	8mm	135x17 (110-160)	20 mm
GP-237-448 MH/L33	medium- heavy	2.500	8mm	135x17(110-160)	20 mm

Weight:

Complete: 110 kg

Dimension:

Complete: 55x120x120cm

General description and usage:

Twins needle sewing machine for regular sewing operations in the production of upholstery. Enlarged passage space between the needle and the arm facilitates handling bulky products.

2. SAFETY MEASURES

Do not put the machine into operation until an appropriate preparation is carried out by a specialist or an authorised person, and until you get acquainted with safety measures.

1. Any sewing machine may be operated only by a properly trained operator.
2. Take into consideration the safety regulations valid on your country.
3. The sewing machine may be used only for the operations for which it has been designed. Other operations are inadmissible.
4. All safety measure must be observed on the machine before putting into operation and during operation.
5. It is advisable to wear protective glasses to ensure personal safety when working on the machine
6. If you are going to make any modifications or changes on the machine observe the safety regulations. Modifications can only be made at your own risk.
7. The main switch of the machine must be switched off or the plug must be pulled out of the socket of mains supply when following operations are to be performed (if you use mechanically controlled clutch motors without a fuse preventing the machine from being started with the pedal until the motor stops).
 - 7.1 Threading the needle thread (threads), threading the looper thread, etc.
 - 7.2 Replacing needles, presser foot, stitch plate, looper bobbin, feed dog, needle guard, finger guard, cloth guide, etc.
 - 7.3 When you leave the workplace and you leave the machine unattended.
 - 7.4 Machine maintenance (cleaning).
8. Repairs, maintenance and modifications of the machine may be carried out only by a specialist or an authorised person. Only spare parts supplied by the machine builder should be used for repairs.
9. Works on the electrical part of the machine can only be carried out by an electrician or under an authorised person's control and supervision.
10. Working on „live“ parts and equipment is inadmissible.
11. Compressed air supply has to be disconnected before maintenance and repairs of pneumatic device. Residual compressed air has to be let off before the works can be done.
12. The user will be held responsible if safety measures given in the instructions for use are not observed.
13. An inseparable part of the instructions for use is the instruction for use of the respective drive which must be observed, as well. In particular point „Safety instructions“.

Important notices

Be careful!

Never set off the machine without the belt cover, you could be hurt.

To avoid disorders and damages, it is necessary to do these:

- Before the first setting off, clean and oil the machine properly .
- Check if the mains voltage is the same like the voltage written on the motor rating plate. If it isn't, never set off the machine .
- When the machine is running the handwheel, must be turned towards the person, If it isn't, the motor reverse polarity.
- Don't run the machine more than 3/4 its speed in first two weeks
- When you put the product off the machine put the needle bar to its highest position.

Safety instruction:

1. The machine can be used for it is needed. When you need to use different embodiments it is necessary to do all safety instruction.
2. It isn't allowed to run the machine without protective devices which it has from the manufacturing plant
3. Only education person can set the machine off and work with it.
4. When replacing sewing machines (needle, presser foot, throat plate, feed dog and bobbin, must be disconnected main switch.
5. Only experts can do wiring

3. COMMISSIONING THE MACHINE

To avoid disorders and damages of the machine you must do these:

Clean the machine from preservatives and put one or two drops oil to the hook remove the front cover and oil connecting rod, needle bar and thread lever. An expert must try if the electric equipment is all right including the electric voltage for motor and the handwheel of the machine must be turned towards the person (according to arrow). Don't use the highest speed of the machine in first two weeks sew to 3/4 the highest speed.

Be careful

Don't encroach the electric equipment of the machine, call an expert. There is a danger of electricity.

When you work with the machine or you are at it you must behave not to be hurt.

No liquid can be put into the electric equipment, it could be disordered. It is necessary to pay attention to safety instructions.

When you work with the machine be careful near the needle, shearing blades, thread lever and the pressure elements.

Be more careful when the head on the base is tipped not to tilt the machine with the base.

When you put the head of the machine into working position hold the head with your both hands. Then there can't be engagement between the machine and the plate of the base.

4. PRECAUTION BEFORE USING

- A. Do not turn on the power as stepping the pedal
- B. Turn off the power when leaving the work place
- C. Be sure to turn the power off when repairing the sewing machine or changing the needle
- D. Make sure to connect the earthing
- E. Do not use multiple number of motors in one outlet
- F. Keep optional distance from the noise centre such as high-frequency weber operation
- G. Be careful of high tension power when disassembling the controller box. (Wait about ten Minutes after turning off the power before disassembling.)
- H. When an error comes along, verify the error code first and turn the power on again to use it.
- I. Make sure to hold the connector edge, facing the arrow mark when inserting or disassembling the frontal connector of the controller box. (Do not hold or pull the cable.)
- J. Check the belt tension.
- K. In case of a new machine which was delivered a long time ago or of a machine that has not been operated for an extend period, lubricate two or three times using the filling tube, first mening up the face plate on such a places as the friction pat of the thread take-up unit, needle bar or presser bar.

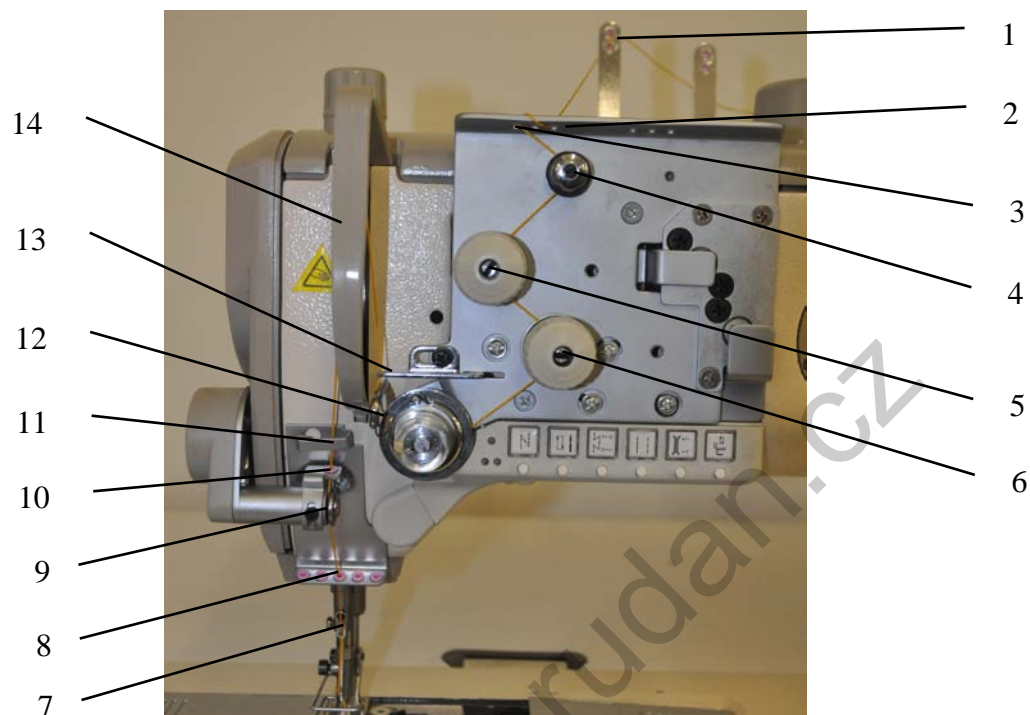
5. INSTRUCTION FOR THE DISPOSAL

When the machine isn't possible to run because its technical life give it to the company ANITA B,s.r.o. ,for its disposal or you can give the machine to another company which is specialised for disposal of product.

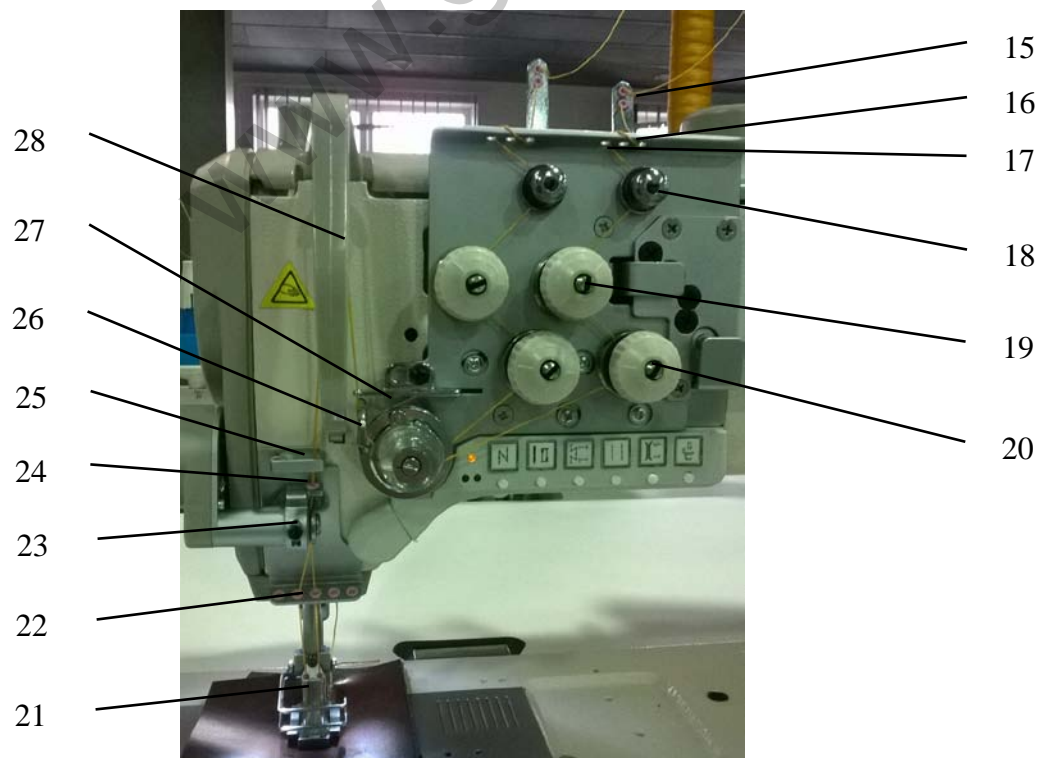
6. THREADING OF UPPER THREAD

6.1 Threading scheme

Single needle machine



Double needle machine



6.2 Threading of upper thread

- Turn off the main switch! Threading may only be performed if the sewing machine is turned off.

Threading of single needle machines

- Insert the thread cones on the stand and lead the upper thread through the unwinder arm. The arm must be in vertical position above the thread reels.
- Lead the thread through guides 1,2 and 3.
- Conduct the thread clockwise around auxiliary tensioner 4.
- Conduct the thread counter-clockwise around additional tensioner 5.
- Conduct the thread clockwise around main tensioner 6.
- Lead the thread under spring 12 a pass through thread regulator 13 up to thread take-up lever 14.
- Pass the thread through take-up lever 14, thread guides 11,10, thread holder 9 and thread guides 8 and 7.
- Insert the thread into the needle eye

Threading of double needle machines

- Insert the thread cones on the stand and lead the upper thread through the unwinder arm. The arm must be in vertical position above the thread reels.

Left needle thread (the same as for single needle machines)

- Insert the thread cones on the stand and lead the upper thread through the unwinder arm. The arm must be in vertical position above the thread reels.
- Lead the thread through guides 1,2 and 3.
- Conduct the thread clockwise around auxiliary tensioner 4.
- Conduct the thread counter-clockwise around additional tensioner 5.
- Conduct the thread clockwise around main tensioner 6.
- Lead the thread under spring 12 a pass through thread regulator 13 up to thread take-up lever 14.
- Pass the thread through take-up lever 14, thread guides 11,10, thread holder 9 and thread guides 8 and 7.
- Insert the thread into the needle eye

Right needle thread

- Lead the thread through guides 15,16 and 17.
- Conduct the thread clockwise around auxiliary tensioner 18.
- Conduct the thread counter-clockwise around additional tensioner 19.
- Conduct the thread clockwise around main tensioner 20.
- Lead the thread under spring 26 and pass through thread regulator 27 up to thread take-up lever 28.
- Pass the thread through take-up lever 28, thread guides 25,24, thread holder 23 and thread guides 22 and 21. Then insert the thread into the needle eye.

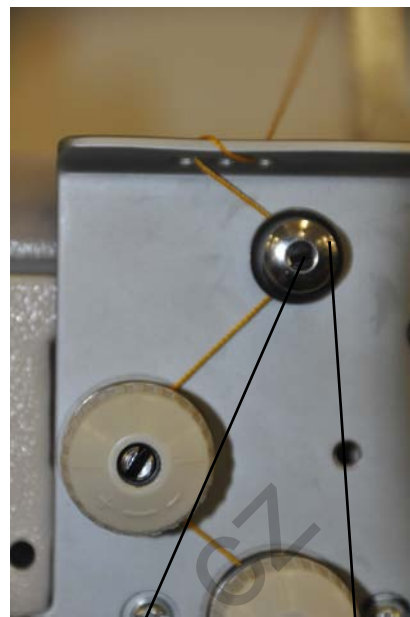
7. SETTING UPPER THREAD TENSION



3

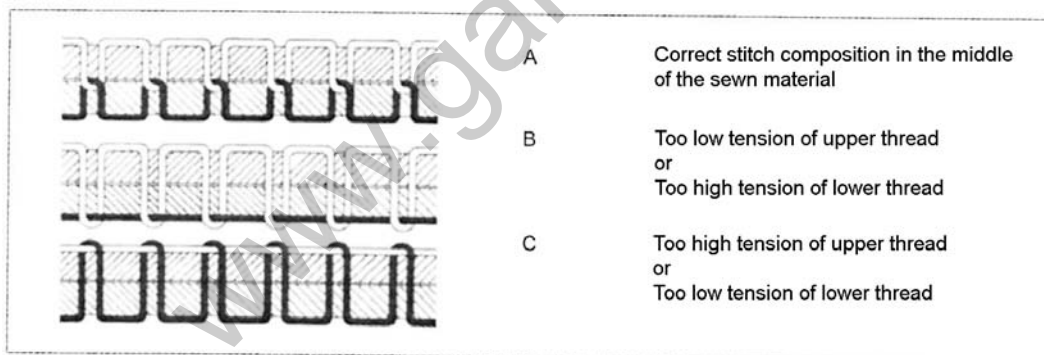
2

1



5

4



Auxiliary thread tensioner

If main tensioner 2 and additional tensioner 3 are open, still, small amount of sub-tension is needed. This sub-tension is regulated by auxiliary tensioner 1.

This tensioner, at the same time, controls length of the thread ends after trimming (thread ends for next stitch).

Basic petting:

Turn the plate 4, until its front side is in level with the pin 5.

- Short threads ens for start of sewing:
Turn the plate 4 clockwise.
- Longer threads ens for start of sewing:
Turn the plate 4 counter-clockwise.

Main tensioner

It is necessary to set minimum tension on main tensioner 2.

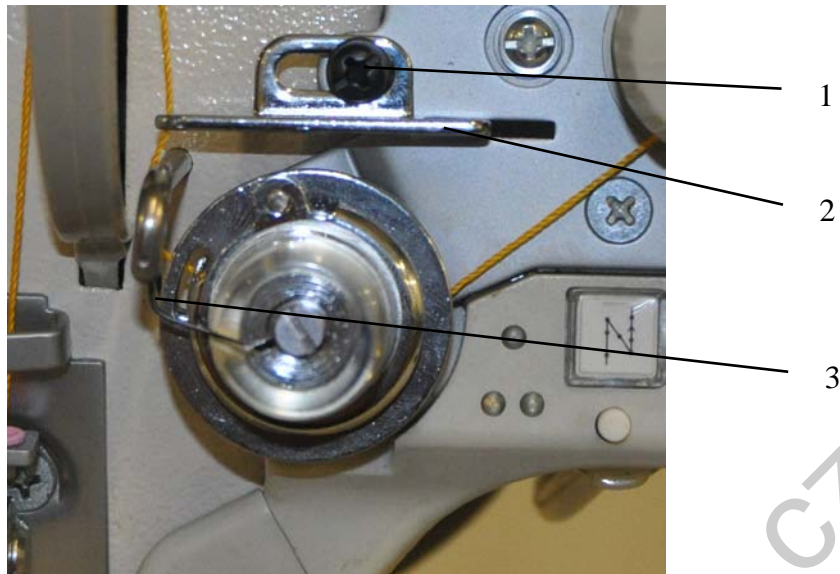
Crossing of threads should occur in the middle of the sewn material.

Too high thread tension can cause unwanted deformation of thin materials or thread breakage. Set the main tensioner 2 in order to reach constant stitch composition.

Additional tensioner

Additional tensioner 3 is used for quick change of upper thread tension, for example in heightened points of seams. Set additional tensioner 3 lower than main tensioner 2.

8. SETTING THREAD REGULATOR



Turn off main switch. The thread regulator may only be adjusted with the sewing machine switched off. The thread regulator controls the quantity of thread required for stitch formation. The thread regulator must be precisely adjusted for an optimum result.

With correct setting the needle-thread loop must slide with low tension over the thickest point of the hook. Loosen screw 1, adjust position of the thread regulator 2, thread regulator to the left = more thread, thread regulator to the right = less thread, tighten screw 1.

Adjustment information:

If the maximum quantity of thread is required, the thread-tensioning spring 3 must be pulled upwards about 0,5mm from its lower limit position. This is the case, when the needle-thread loop passes the maximum hook diameter.

9. WINDING OF HOOK THREAD



Put the thread cone on the thread stand and conduct the thread through the unwinder arm. Pass the thread through thread guide 1 and tensioner 2.

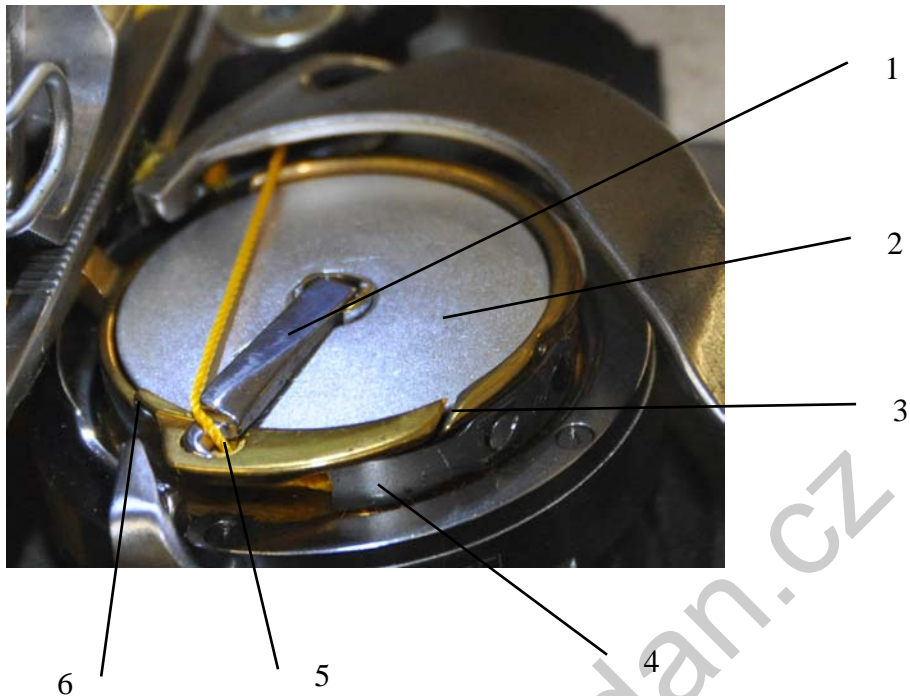
Pull the thread beginning behind the tear-off knife 3 and tear it off. Insert the empty bobbin on the winder. Press the winder lever 4 against the bobbin.

Start sewing. Winder lever will stop the process of winding when the bobbin is full. The winder always stops when the knife 3 is in the upper position like indicated on the right picture. Take out the full bobbin, pull the thread behind the knife 3 and tear off.

Insert new empty bobbin and press the winder lever 4 against the bobbin.

If the thread is not supposed to be wound, it is necessary to fix the presser foot in the upper position and adjust the presser foot lift for the minimum value, otherwise breakage can occur.

10. EXCHANGE OF HOOK THREAD BOBBIN



Turn off the main switch. Hook thread bobbin may only be replaced if the machine is turned off.

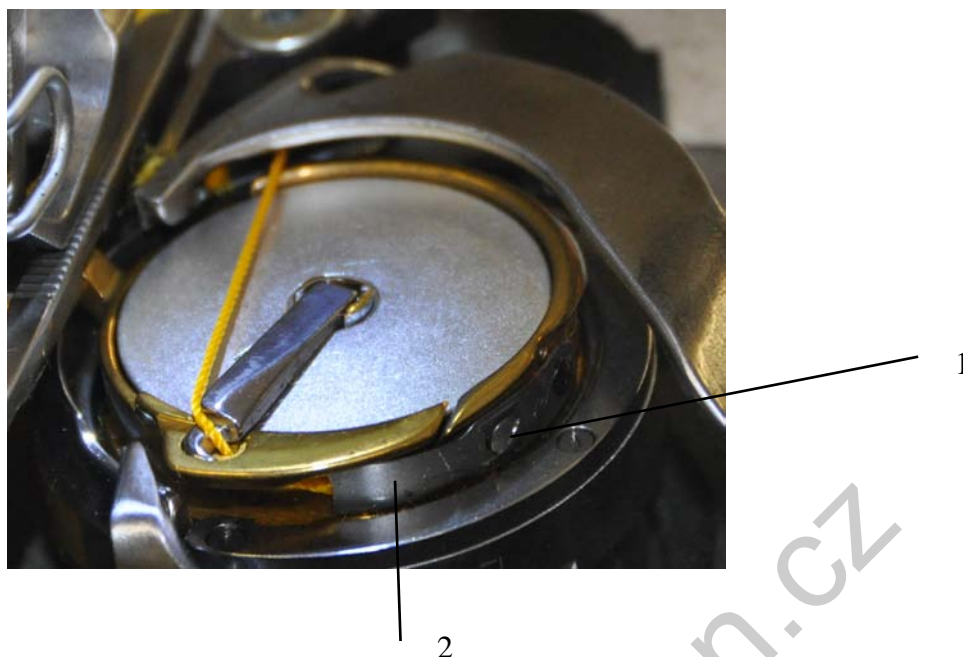
Taking out the empty bobbin

Raise the flap 1 and take out the empty bobbin.

Inserting the full bobbin

Insert the bobbin 2 in a way that it moves in counter-clockwise direction against the hook when unwinding the thread. Conduct the lower thread through the slot 3 and pass it underneath the spring 4. Pull the thread through the slot 6 and continue pulling until it stands out about 3cm. Close the flap 1 and pull the thread through the flap guide 5.

11. SETTING HOOK THREAD TENSION



Turn off the main switch. Lower thread tension may only be adjusted only if the machine is switched off.

Adjustment of tension spring 2

Set the tension spring 2 by the regulating screw 1.

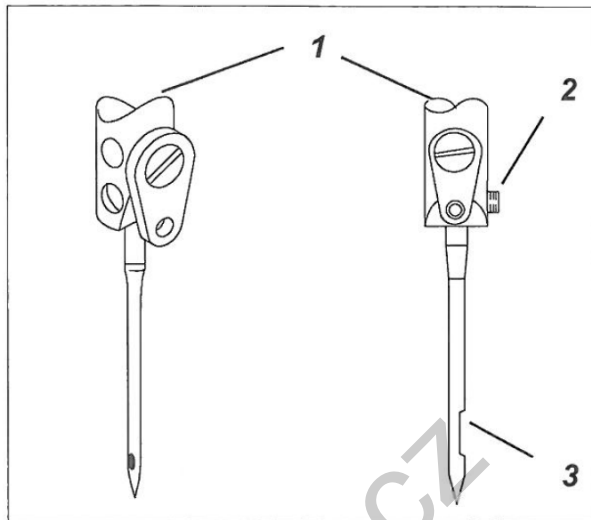
Increase the tension = turn screw 1 clockwise

Decrease the tension = turn screw 1 counter-clockwise

12. CHANGING THE NEEDLE IN 1-NEEDLE MACHINES



2 1



Turn off the main switch. Needle may only be changed if the machine is switched off.

Turn the handwheel until the needle bar reached its upper end position. Loosen screw 2. Take out needle from the needle bar 1. Insert the new needle properly into the needle bar hole, aligning it so that the needle groove 3 points to the hook. Tighten screw 2.

If needle with a different size is inserted, distance between hook and needle must be adjusted, otherwise following faults can occur:

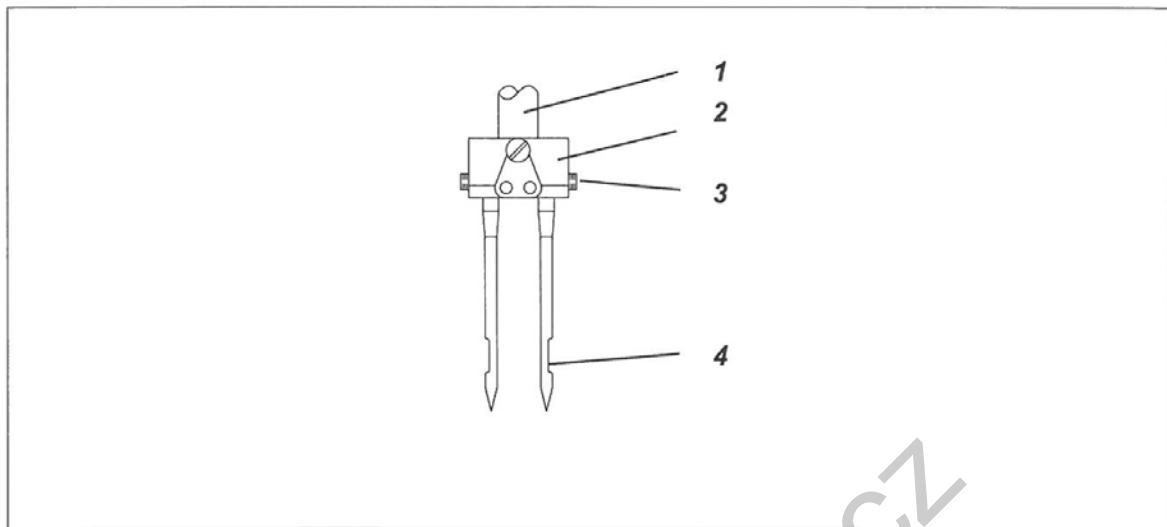
If thinner needle is used:

- Missing stitches
- Thread damage

If thicker needle is used:

- Damage of hook tip
- Damage of needle

13. CHANGING THE NEEDLE IN 2-NEEDLE MACHINES



Turn off the main switch. Needle may only be changed if the machine is switched off. Turn the handwheel until the needle bar 1 reached its upper end position. Loosen screw 3. Take out needle from the needle bar holder 2. Insert the new needle properly into the needle bar hole 2, aligning it so that from view of operator the right needle groove 4 points to the right and left needle groove to the left (see picture above). Tighten screw 3.

If needle with a different size is inserted, distance between hook and needle must be adjusted, otherwise following faults can occur:

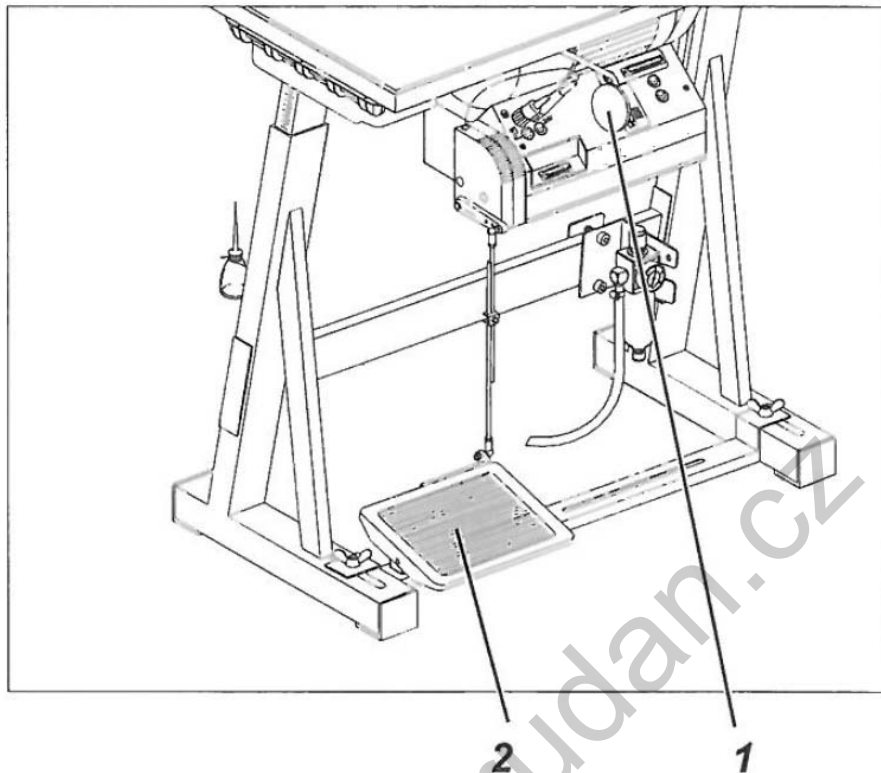
If thinner needle is used:

- Missing stitches
- Thread damage

If thicker needle is used:

- Damage of hook tip
- Damage of needles

14. LIFTING OF PRESSER FEET



Presser feet can be lifted electro-pneumatically by actuating the pedal 2 or by pressing knee lever 1.

Mechanic lifting of presser feet (knee lever)

In order to move material, correcting its position, press the knee lever to the right. Presser feet will remain lifted all the time when knee lever 1 is pressed.

Electropneumatic lifting of presser feet (pedal)

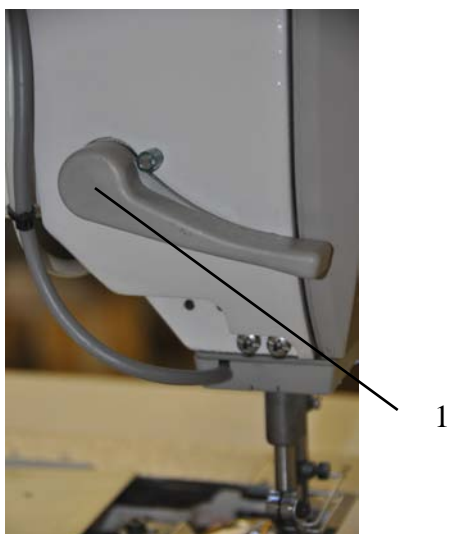
Press the pedal 2 halfway back.

The presser feet will remain lifted with the machine at a halt.

Press the pedal 2 all the way back.

The thread trimmer will be actuated and presser feet will be lifted.

15. LOCKING THE PRESSER FEET IN THE UPPER POSITION



Turn the lever 1 downwards. The presser feet are locked in their utmost upper position. Turn the lever 1 upwards. The presser feet are released.

Or Lift the presser feet pneumatically by the foot pedal or mechanically by the knee lever . The lever 1 will turn back to its initial position.

16. SETTING THE PRESSER FOOT PRESSURE

Required pressure of presser foot can be adjusted by the regulating knob 2.

Note that the sewn material must not be loose.

At the same time, pressure must not be higher than required.



Increase of pressure = turn the knob 2 clockwise

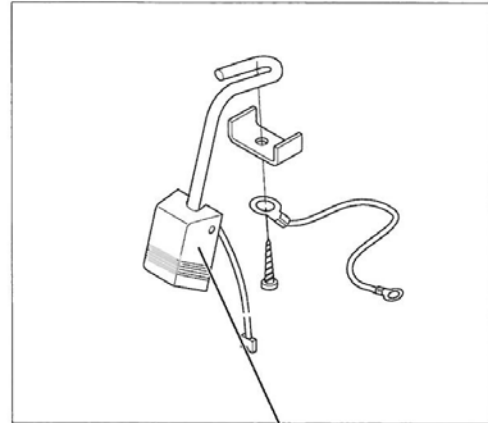
Decrease of pressure = turn the knob 2 counterclockwise

17. SETTING THE PRESSER FOOT STROKE



2

1



3

Sewing machines are always equipped with 2 dials for setting the presser foot stroke.

Left dial 2 controls standard presser foot stroke in the range of 1 to 9mm.

Right dial 1 controls increased presser foot stroke in the range of 1 to 9mm.

Turn the dials 1 and 2 (value 1-9)

1 = minimum presser foot stroke

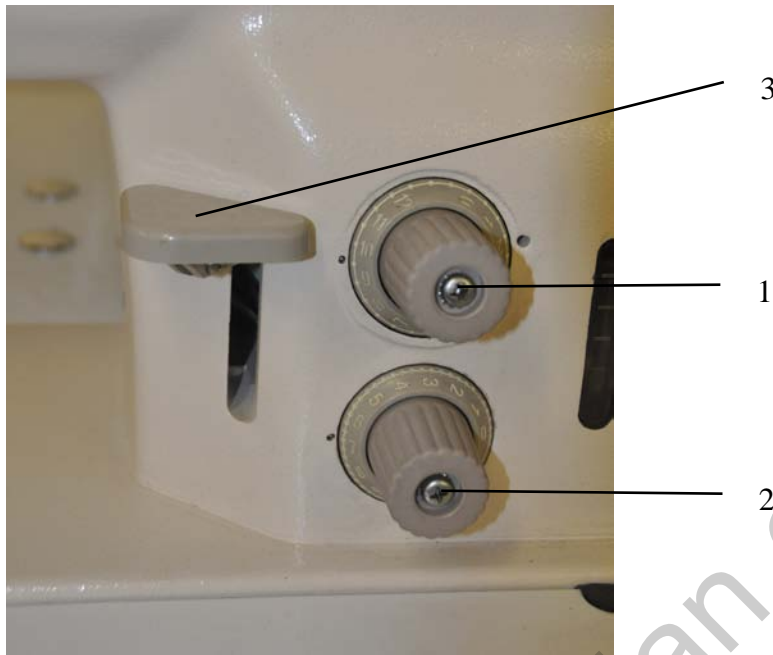
9 = maximum presser foot stroke

Presser foot stroke and number of stitches are interdependent.

The potentiometer is mechanically connected with the dials and the control unit can thus recognize the set presser foot stroke, limiting the sewing speed (number of stitches) automatically. The machine is equipped with the system of quick electropneumatic setting of presser foot stroke. When cross seams or heightened/reinforced points of material are sewn, increased secondary presser foot stroke (dial 1) can be activated by pressing the knee lever 3.

Note – standard presser foot stroke set by the dial 2 must not have higher value than increased presser foot stroke set by dial 1.

18. SETTING THE STITCH LENGTH



Sewing machines equipped with 2 knobs for setting the stitch length. This enables operator to sew with 2 different lengths of stitch which can be activated via special key (see following chapter)

Stitch length can be set by knobs 1 and 2 on the machine arm.

- Upper knob 1 sets longer stitch length
 Position 1 = minimum stitch length
 Position 12 = maximum stitch length
- Lower knob 2 sets shorter stitch length
 Position 1 = minimum stitch length
 Position 12 = maximum stitch length

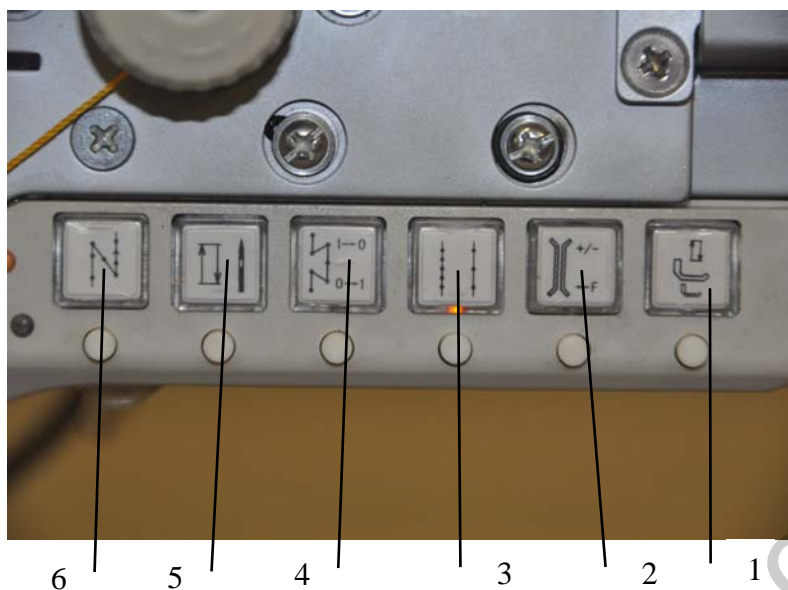
Stitch lengths for sewing forward and backwards are identical.

- For manual bartacking press the lever 3 downwards. Machine will start to sew backwards all the time when the lever 3 is pressed.

Note: For easy setting the knob 2 (see following chapter) should always set the initial stitch length which remains unchanged.

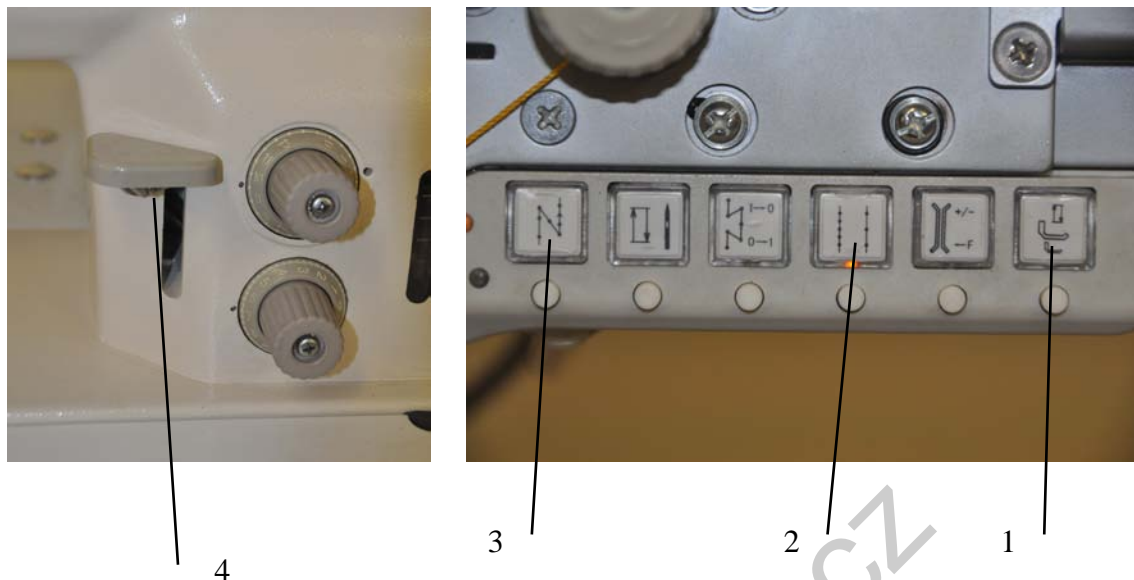
Note.: The stitch length set by lower knob 2 must not have higher value than the stitch length set by the upper knob 1.

19. KEY PANEL ON THE MACHINE ARM



Key	Function
1	Quick presser foot stroke adjustment Light is on = maximum presser foot stroke Light is off = minimum presser foot stroke
2	Additional thread tension Light is on = additional thread tension is activated Light is off = additional thread tension is turned off
3	Second stitch length Light is on: Longer stitch length (upper knob) is activated Light is off: Shorter stitch length (lower knob) is activated
4	Activating or suppressing the initial or final bartack If the initial and final bartacks are switched on, by pressing the key the following bartack will be switched off. If the initial and final bartacks are switched off, by pressing the key the following bartack will be switched on.
5	Setting upper and lower position of needle. 1 = Needle in upper position 2 = Needle in upper/lower position 3 = Single stitch 4 = Single stitch with second stitch length/shorter stitch 5 = Needle in upper position, when outside position 2
6	Manual backwards sewing. The machine sews backwards as long as the key is pressed.

20. SEWING



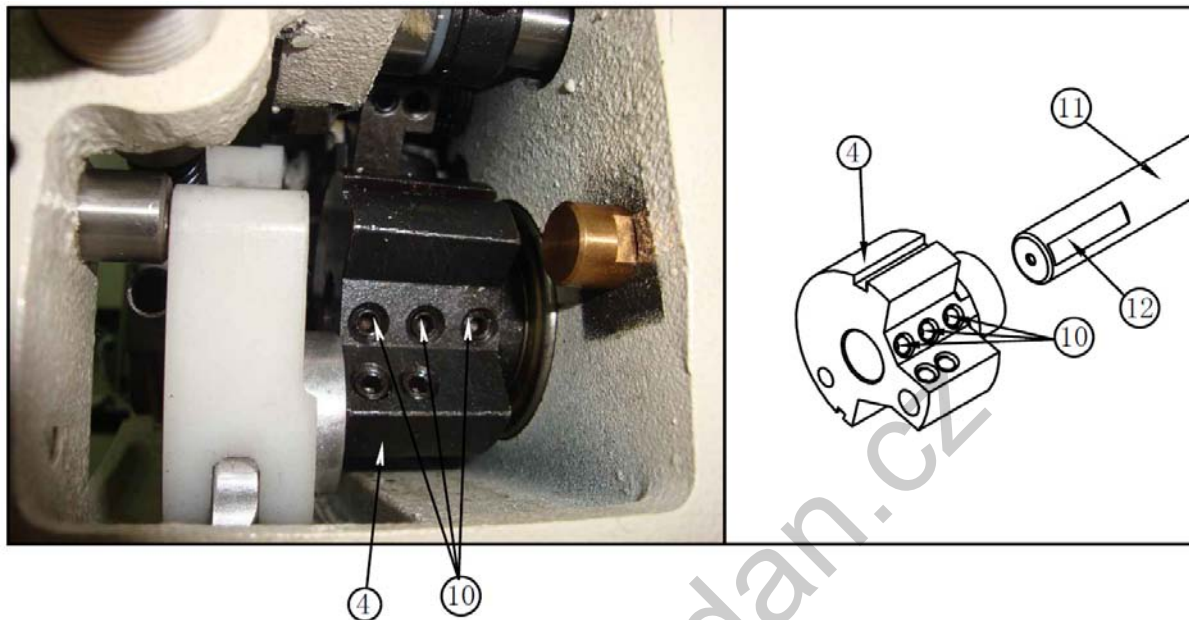
Operation steps and sewing functions:

Sewing operation	Operation / Instructions
Before start of sewing: Initial position Place the sewn material at the beginning of seam	Pedal at stop position Sewing machine at a halt Needle is up Presser feet are down Press the pedal halfway back Lift the presser feet Place the sewn material under the needles
Sewing	Press the pedal forward and keep it pressed. The machine continues to sew at speed controlled by the pedal.
In the middle of the sewing: Stop sewing operation Continue sewing operation	Release the pedal (stop position) The machine stops in the 1st position (needle is down). Presser feet are down Press the pedal forward. The machine continues to sew at speed controlled by the pedal.

Sewing of backtack in the middle of sewing	<p>Press the lever of the stitch regulator 4 downwards. The machine sews in backwards direction (backtack) as long as the stitch regulator lever is pressed. Required speed is controlled by the pedal.</p> <p>Or</p> <p>Press the key 3.</p>
Sewing over cross seam. (Maximum presser foot stroke)	<p>Maximum presser foot stroke is activated. Speed is limited to 1500 spm</p> <p>Operation modes of maximum presser foot stroke:</p> <p>Press the knee switch to activate the maximum presser foot stroke</p> <p>Press the knee switch again to deactivate maximum presser foot stroke</p>
Sewing with 2nd stitch length during sewing (maximum stitch length)	Press key 2
Increase of thread tension during sewing	Press key 1
<p>At the end of sewing: Take out the sewn material</p>	<p>Press the pedal all the way backwards and keep is pressed.</p> <p>End bartack will be sewn (if activated). Thread will be trimmed. The machine will stop in the 2nd position. Needle is up. Presser feet are up.</p> <p>Take out the sewn material</p>

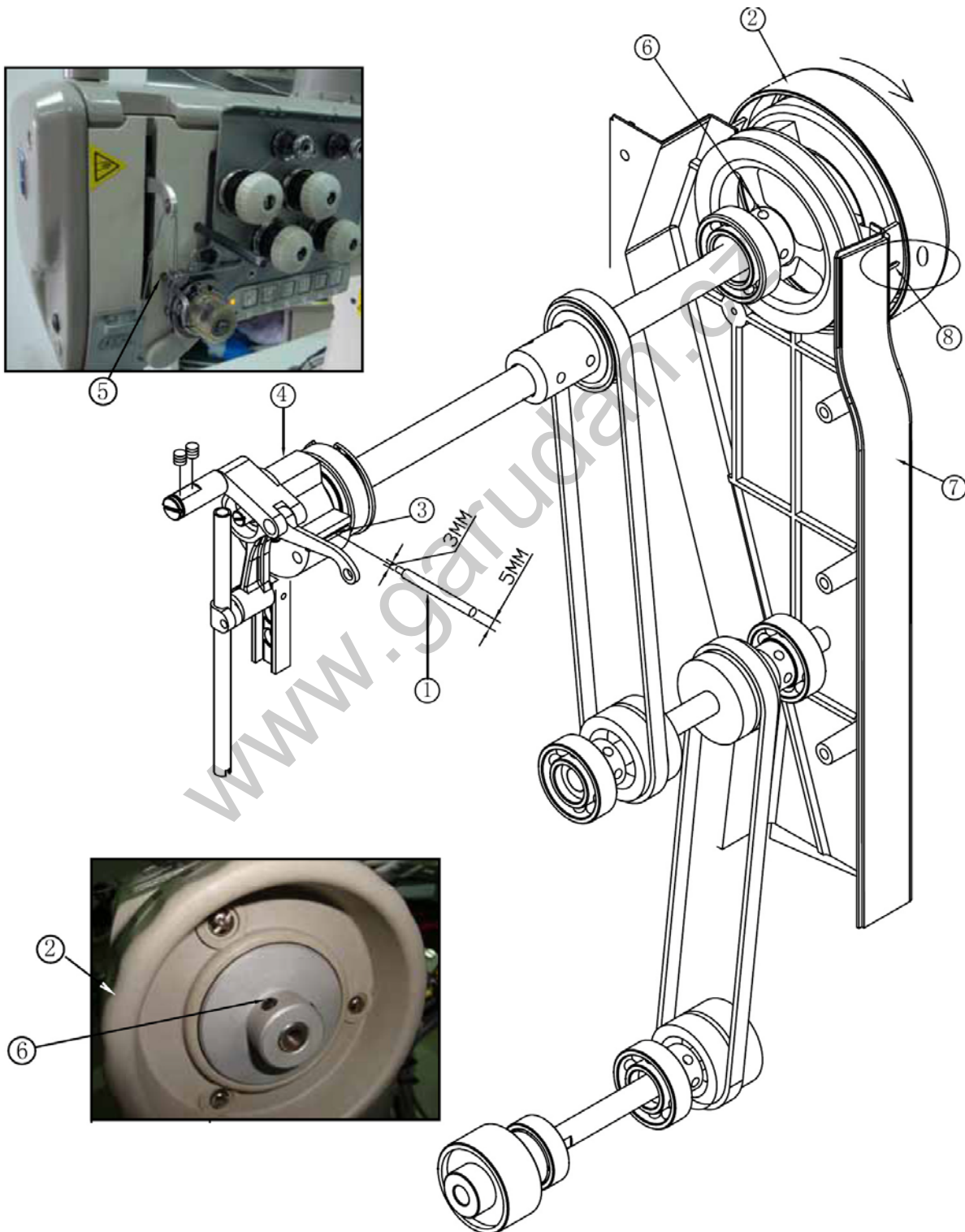
21. MAIN SHAFT POSITIONER (1/2)

3 screw (10) of the cam (4) need tight on the flat (11) of the shaft (11).



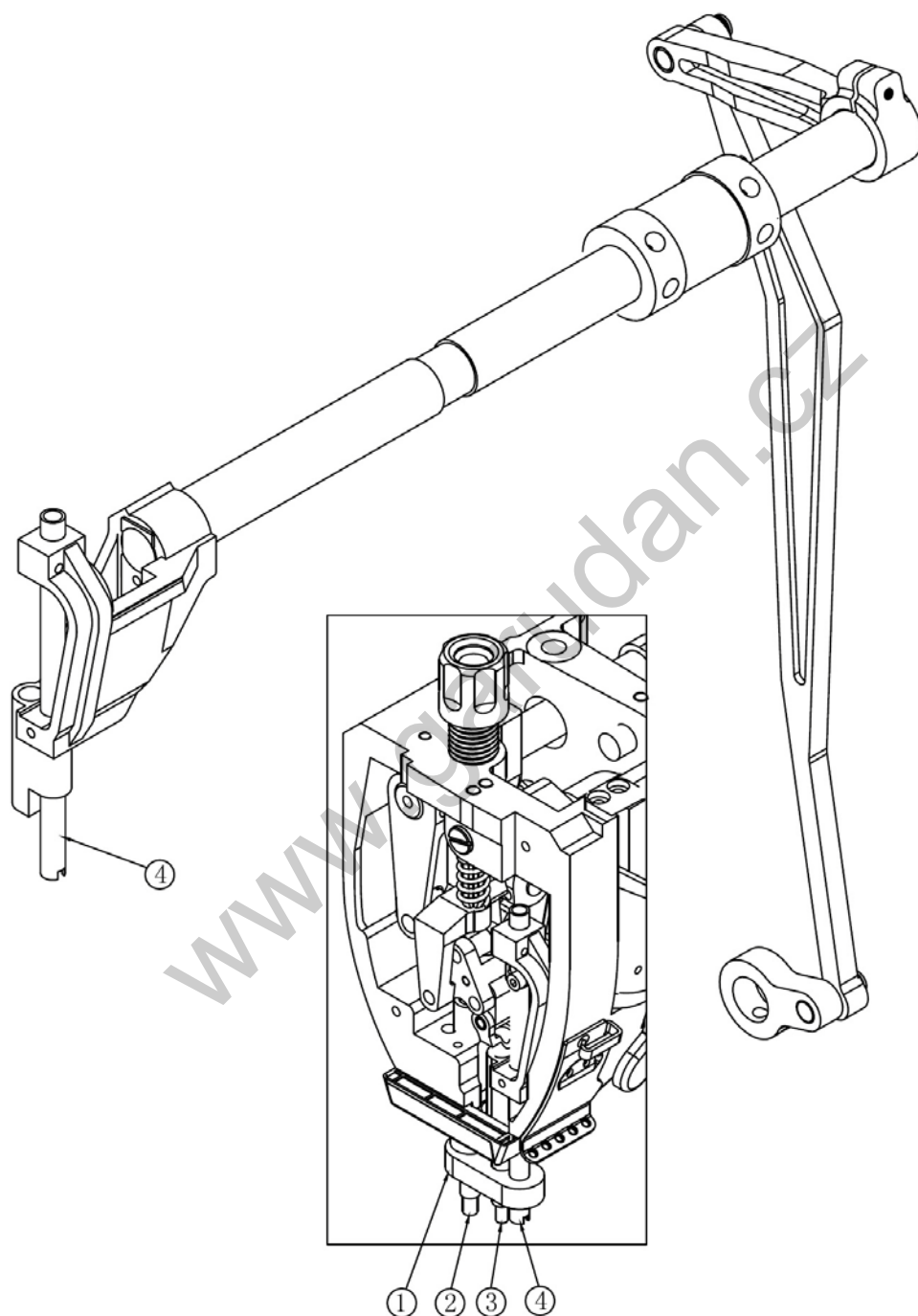
22. MAIN SHAFT POSITIONER (2/2)

Use the stipulate (1) 3 mm one end go through the positioner hole (5) of the machine, inserting the notch (3) of the cam (4), loose the fixed screw (6) of the hand wheel (2) removing the and wheel (2) make the dialing „0“ align to the marks (7) of the belt cover (8) tight the screw (6).



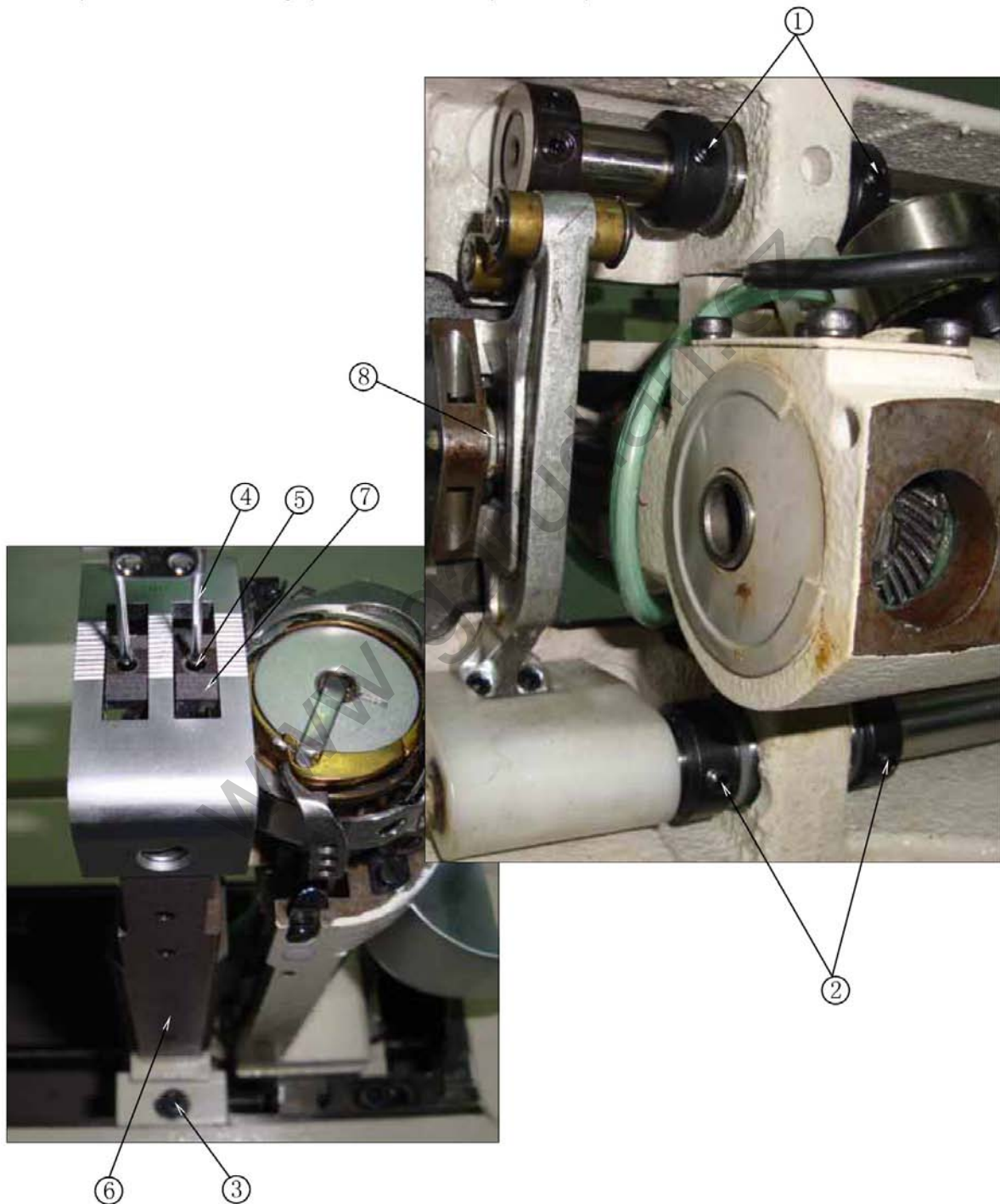
23. NEDDLE POSITION SETTING

Use the fixture (1) with outer presser foot (2), inner presser foot (3), needle bar (4), and make the needle bar (4) to pre-setting position.



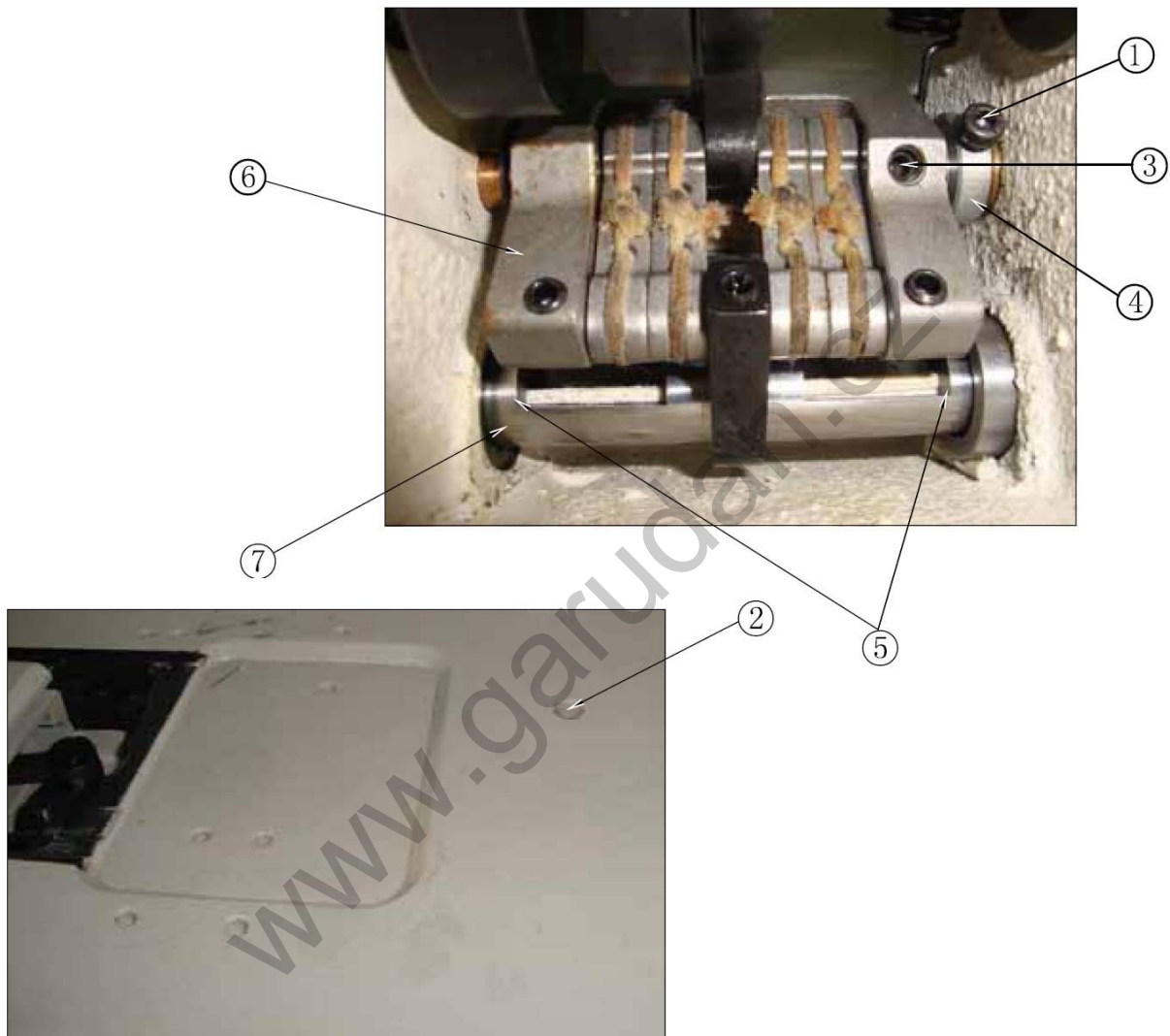
24. FEED DOG RELATIVE WITH NEEDLE POSITION SETTING

Release the screw (1),(2),(3) move the feeding block (6) and make the needle (4) to center the feed dog (7) hole (5) , then tie the screw (1),(2),(3). (notice: make the gap (8) as small as possible).



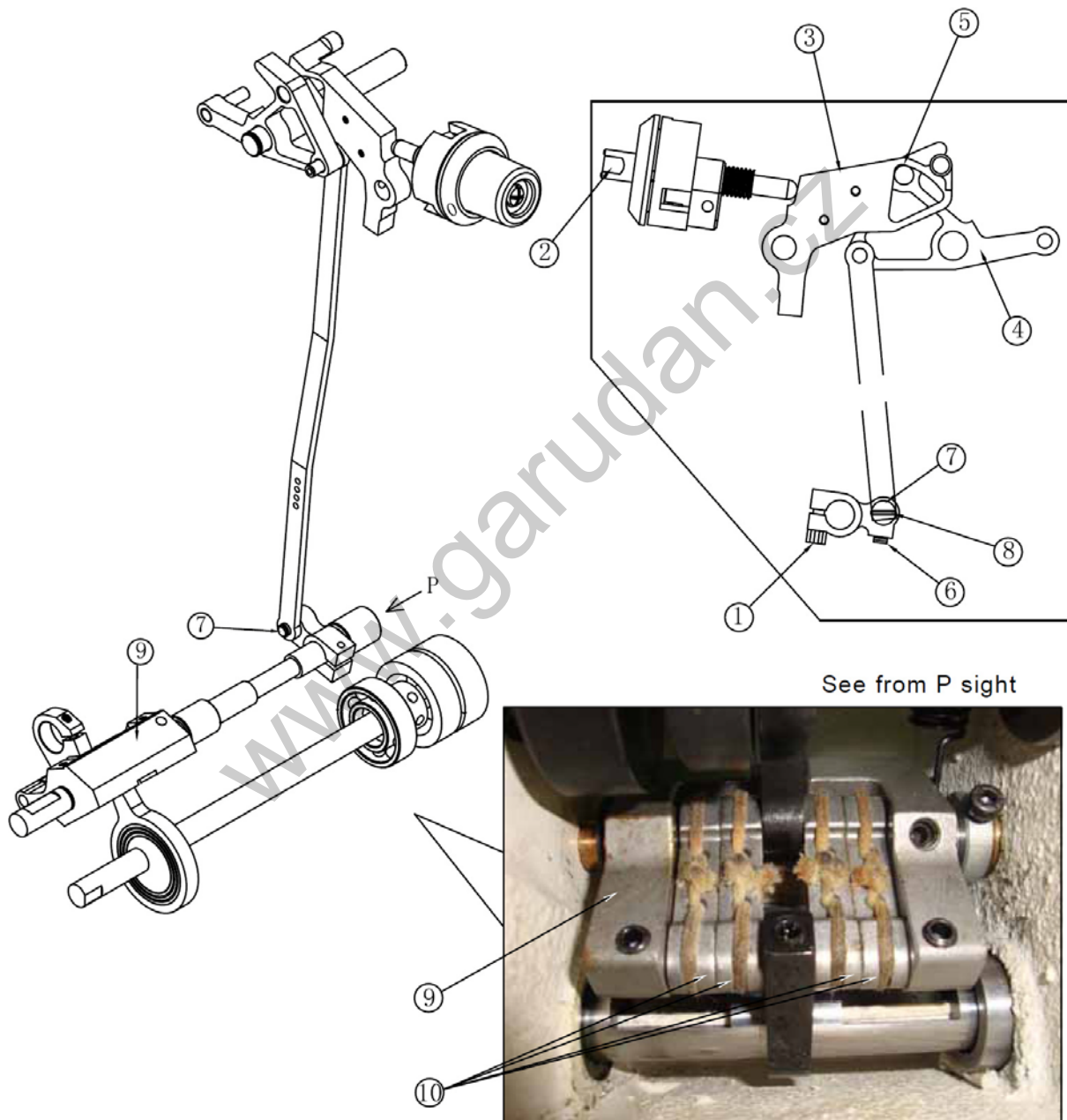
25. FEEDING TRANSFER POSITION SETTING

Release the screws (1),(2),(3) move the block (6) and make the block (6) position same as shaft (7) slot (5). Tie the screws 3,2,1 in an order, remember to reduce the gap as small as possible when tie the screws.



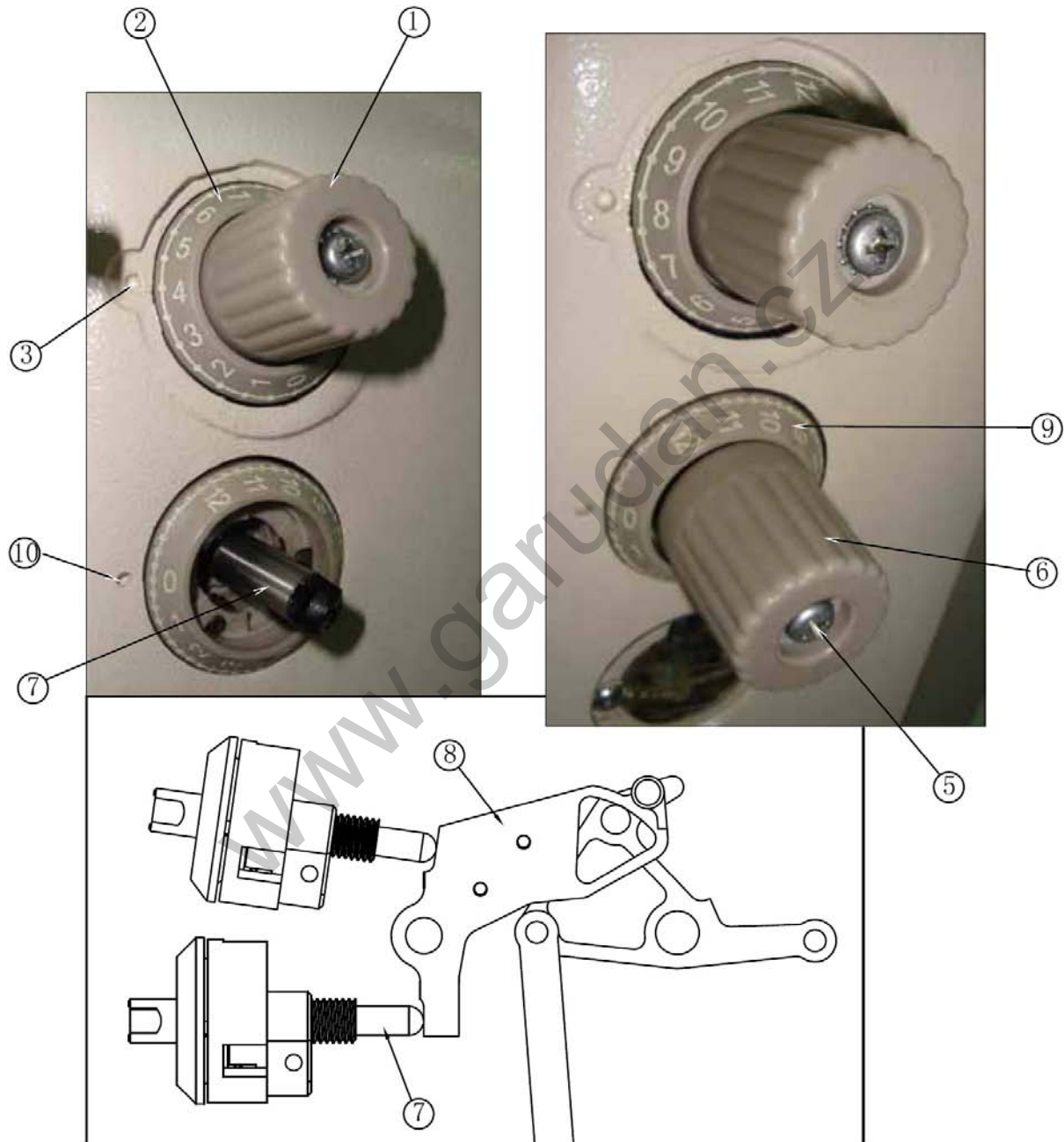
26. NORMAL STITCH AND REVERSE STITCH FEEDING POSITION SETTING

Release the screw (1), use tool to rotate the top of the rope (2), make the plate (3) and link (4) as same as (5), (like the diagram). Release the screw (6), rotate the eccentric wheel (7), make the notch (8) become horizontal, tie the screw (6). Rotate block (9) and make link (10) aligned, tie the screw (1). Check the length of normal stitch and reverse stitch are same or not, if there is some difference, please release the screw (6), use tool to adjust the eccentric rope (7).



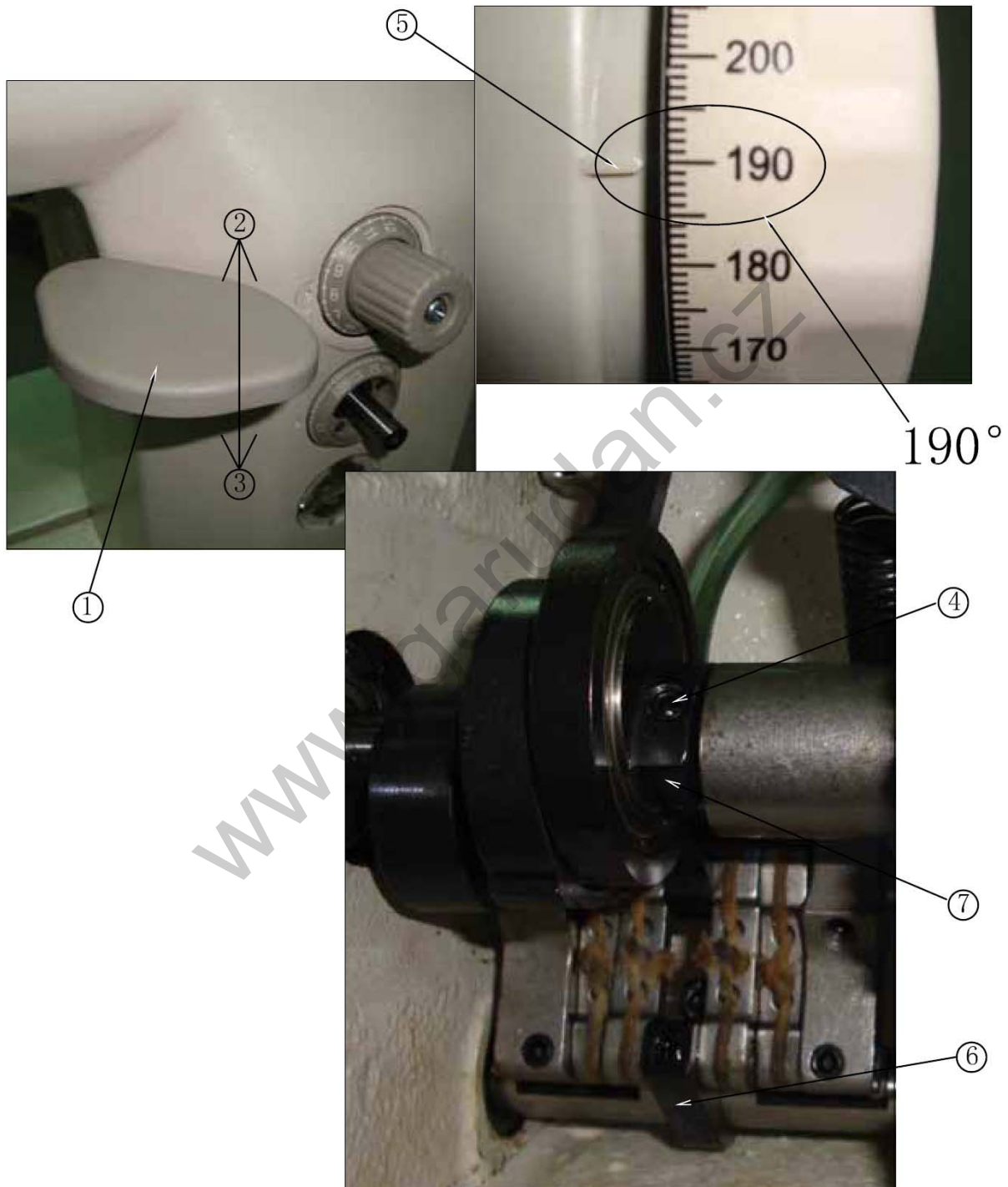
27. FEEDING SETTING

Rotate the knob (1), make the scale „4“ to aligned with the mark (3). Release the screw (5) and take off the knob (6), use a tool to rotate the top of the rope (7), make the rope (7) to touch plate (8), rotate the scale plate (9) and make the scale „4“ to aligned with the mark (10). Put the knob (6) back and tie the screw (5).



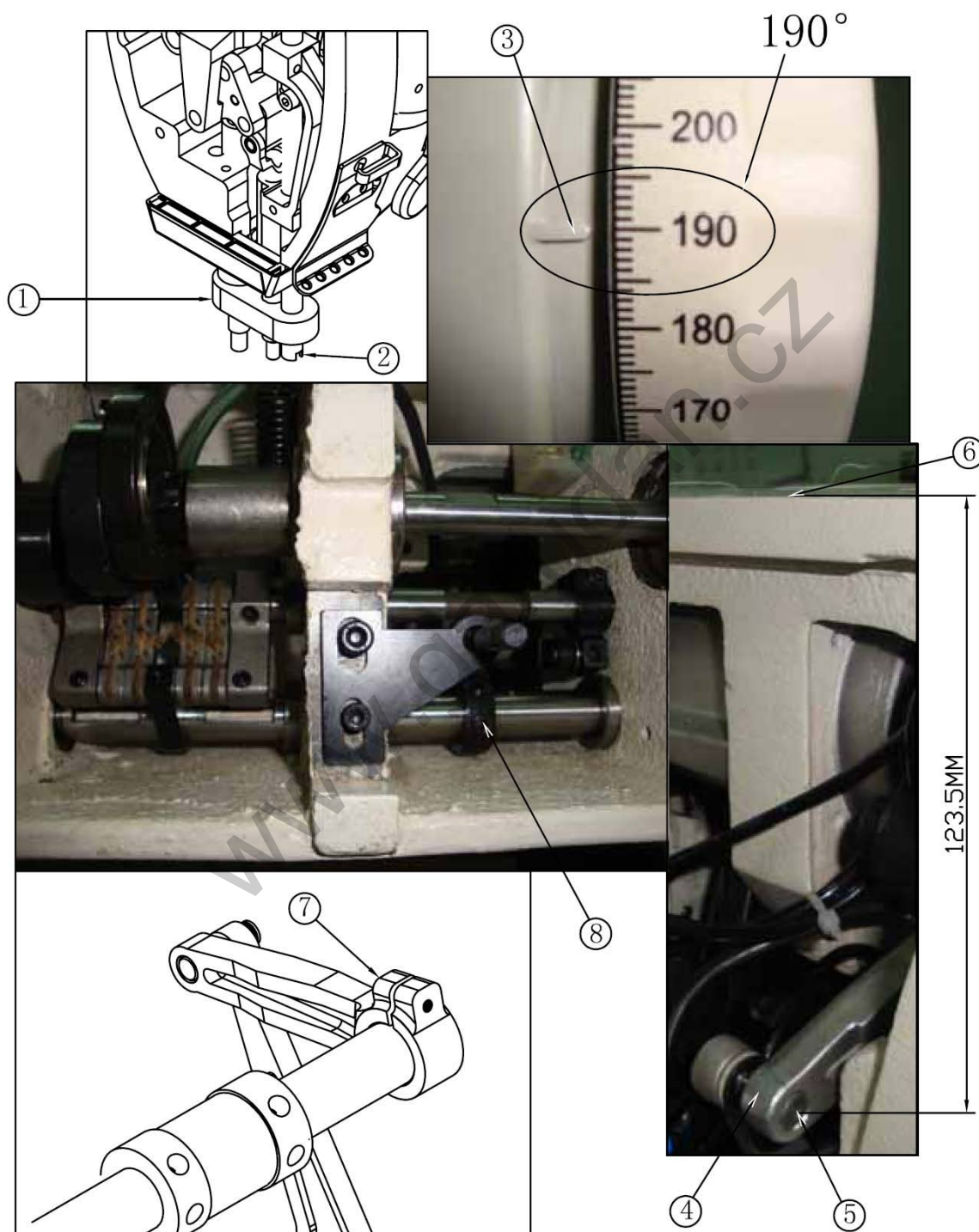
28. FEEDING TIME ADJUSTMENT

Make hand wheel scale „190“ aligned with the mark (5), sbake the manual reverse stitch knob (1) up and down, adjust the eccentric (7) until the connected unit (6) without any movement, tie the screw (4).



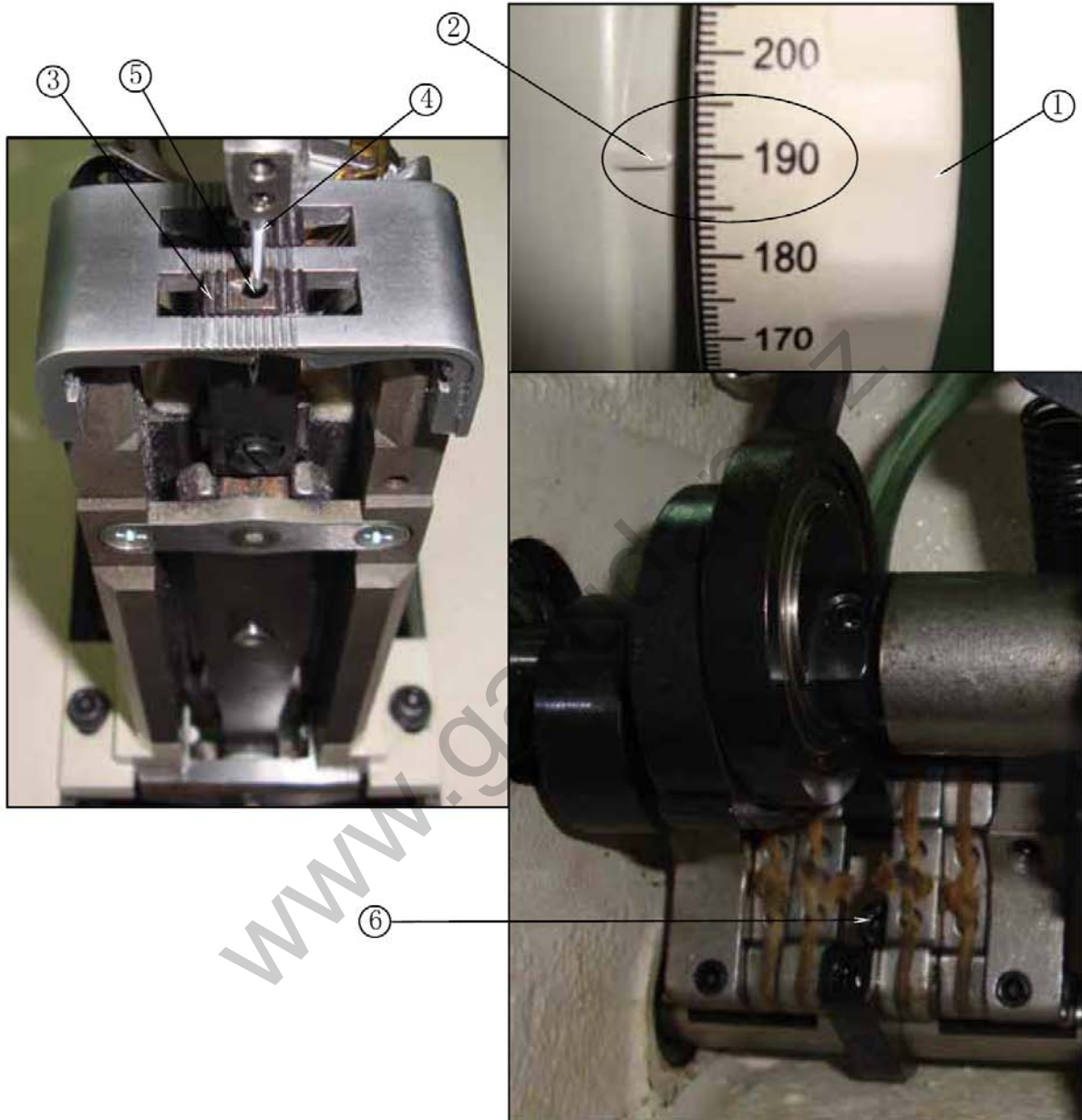
29. NEEDLE BAR VERTICAL POSITION SETTING

Use the fixture (1) to make the needle bar (2) to pre-setting position, rotate the hand wheel and make the scale „190“ aligned with the mark (3). Release the screw (7), make the distance between the link (4) center (5) and surface of the machine be 123,5 mm, tie the screws (7), (8).



30. FEED DOG POSITION SETTING

Rotate hand wheel (1) and make the scale „190“ aligned with the mark (2). Move the feed dog (3) and make needle (4) on the center of the hole (5), tie the screw (6).



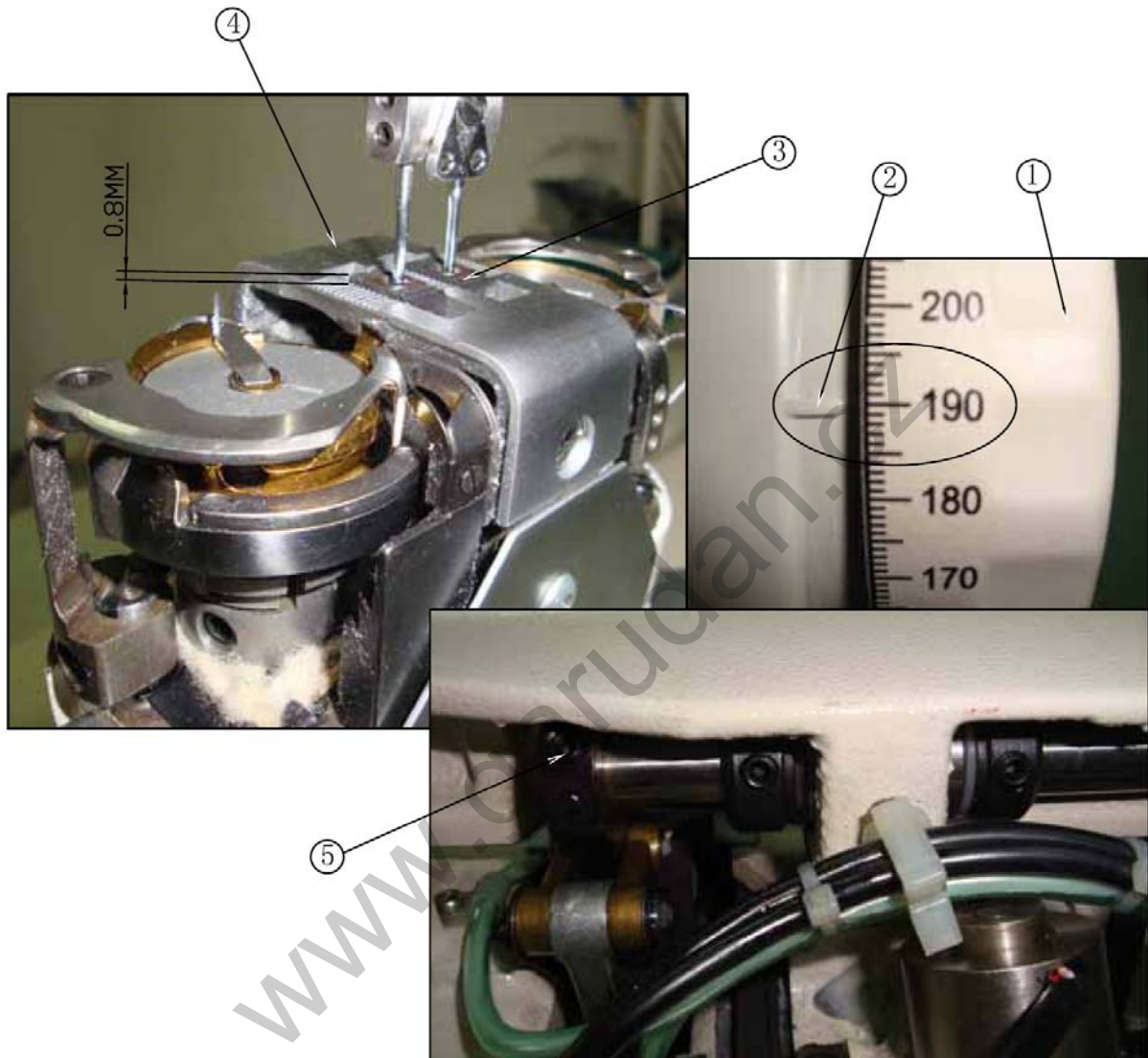
31. FEED DOG MOVEMENT TIMING SETTING

Rotate driving eccentric (2), make the screw (1) aligned with the screw (3) of feeding eccentric (4). Tie the screw (1) (adjust the feeding eccentric).



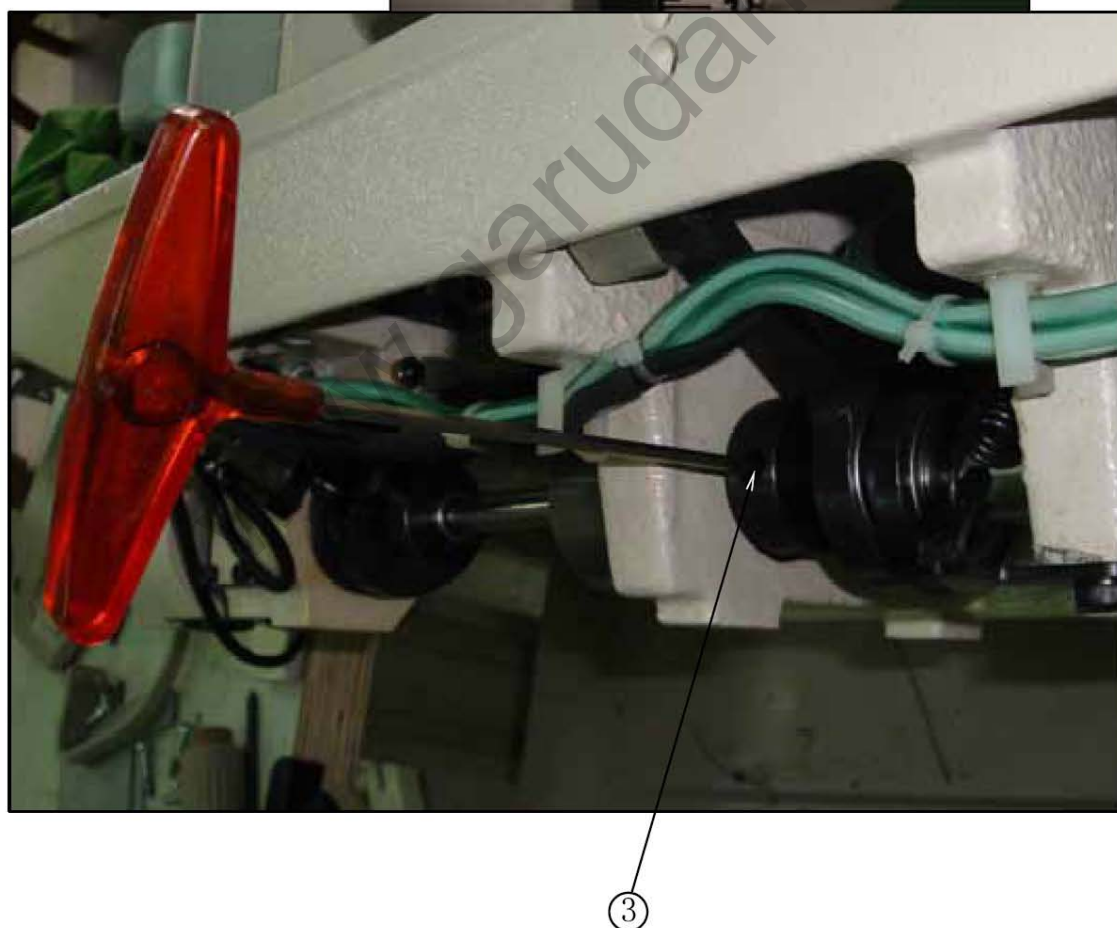
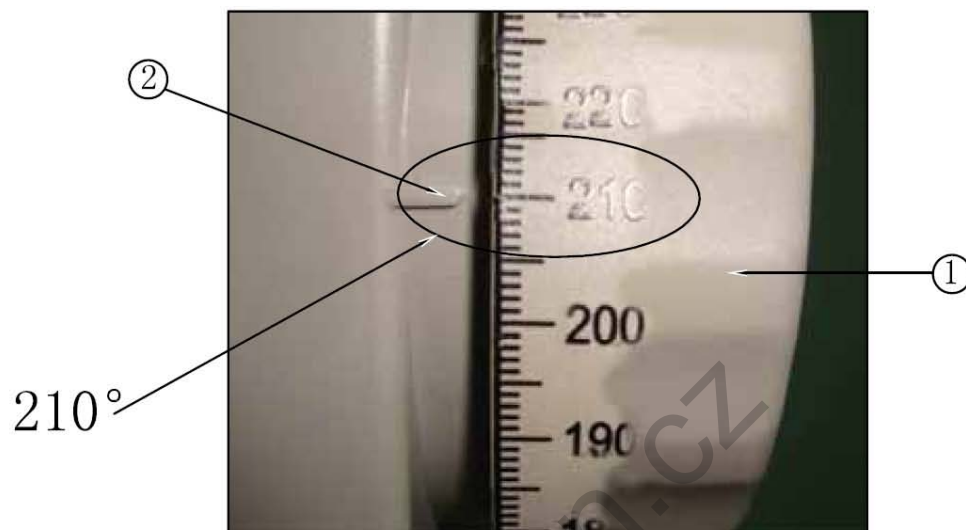
32. FEED DOG HEIGHT RELATIVE WITH NEEDLE PLATE SETTING

Rotate hand wheel (1) and make the scale „190“ aligned with the mark (2), feed dog (3) is 0,8 mm higher than needle plate (4), tie the screw (5).



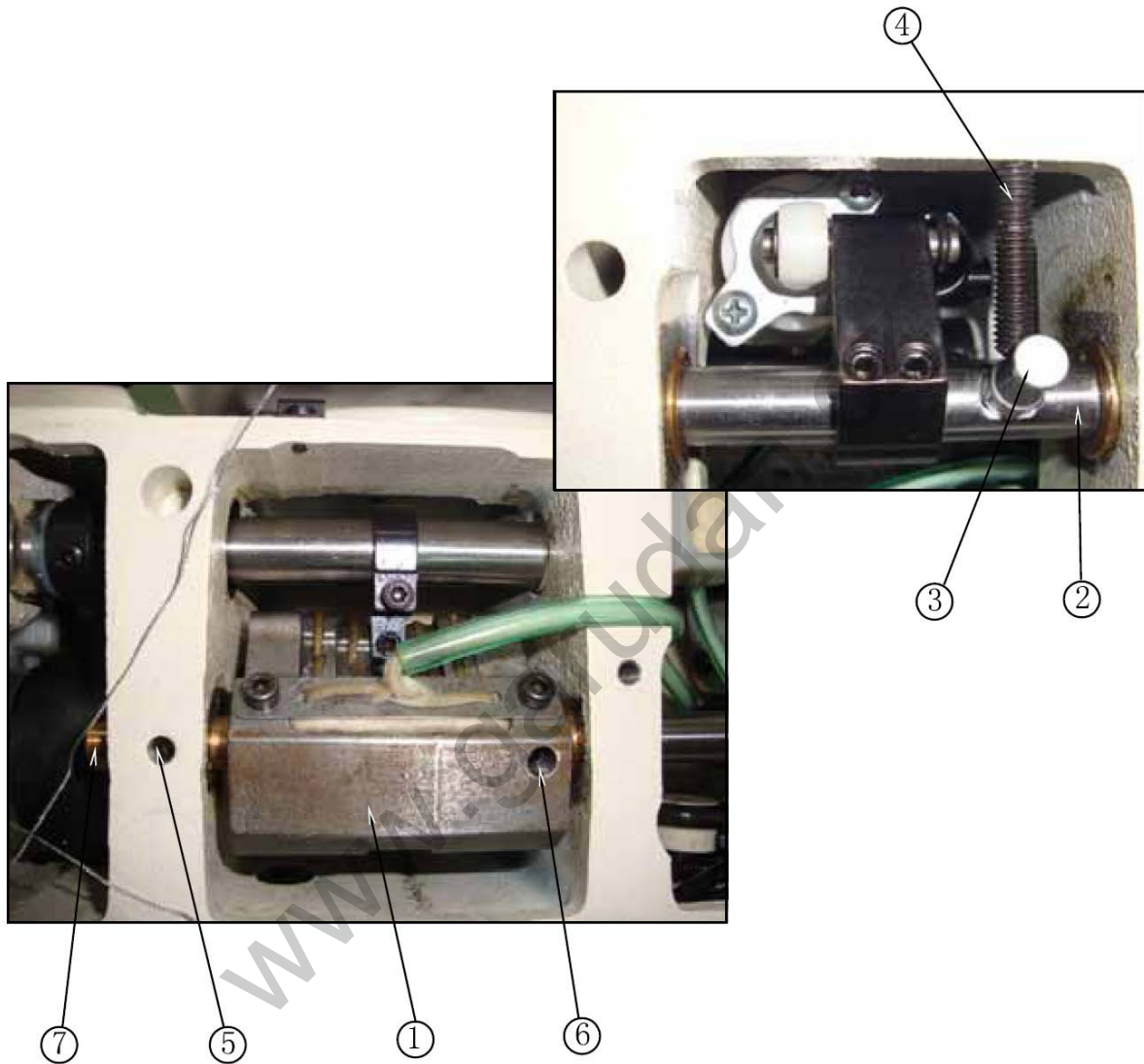
33. COUNTERWEIGHT BLOCK SETTING

Rotate hand wheel (1) and make the scale „210“ aligned with the mark (2), adjust the screw (3) of the counterweight block and make the screw (3) horizontal with the picture.



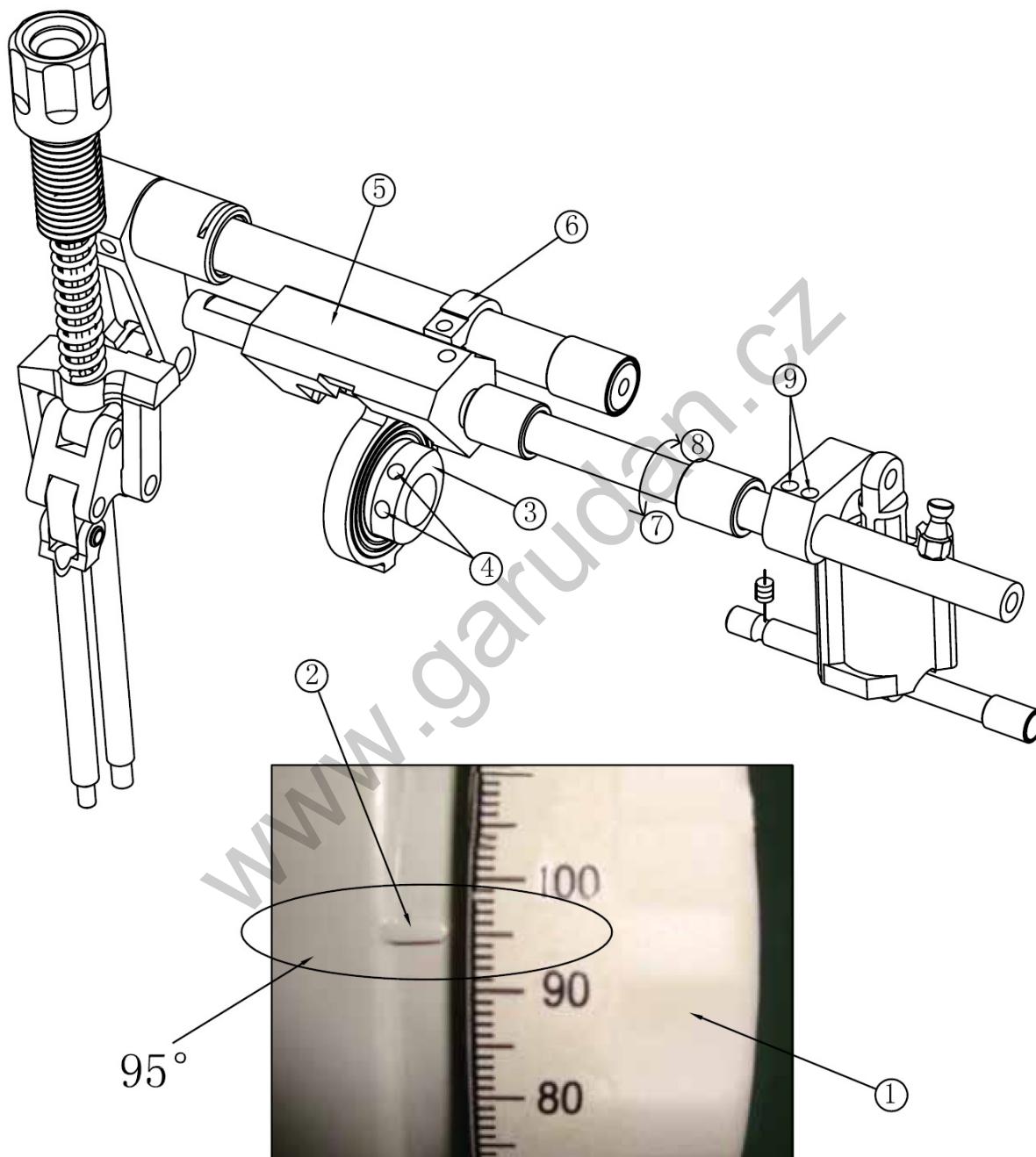
34. THE MECHANICAL OF PRESSER FOOT AMOUNT INTERACTION SETTING

Move the shaft (2), make the touch point (3) and positioned screw (4) aligned, move the block (1) and put it in the center of the space, tie the screw (6). (notice: don't touch shaft (2)), then press the fixed shaft (7), tie the screw (5).



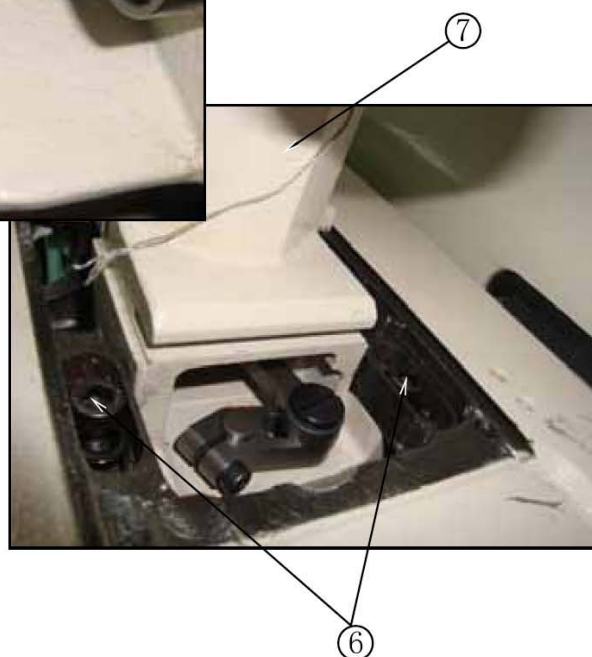
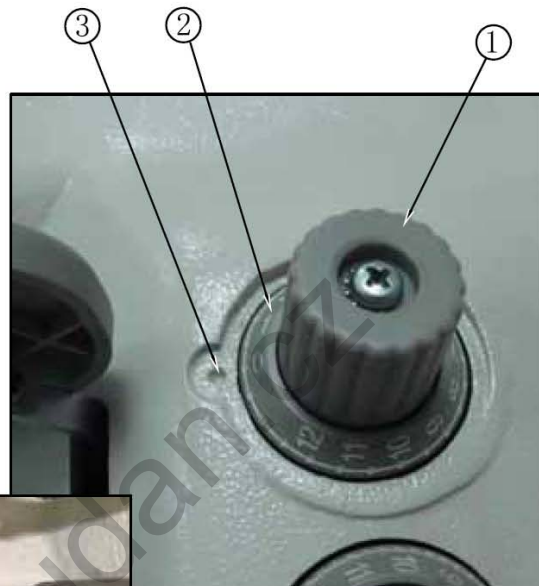
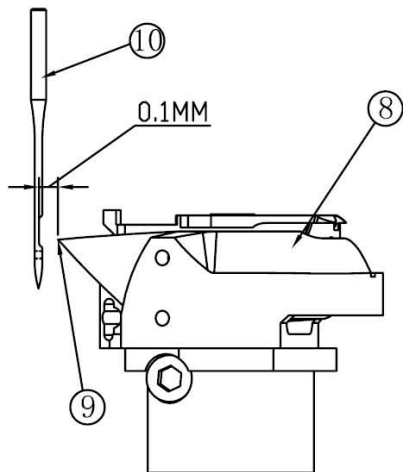
35. INTERACTION TIMING SETTING

Rotate hand wheel (1) and make the scale „95“ aligned with the mark (2). Use tool to rotate the block (5) and adjust the driving eccentric (3) at the same time until the connected unit (6) without any movement, tie the screw (4). Rotate to 7 direction 1~3° before tie the screw (9).



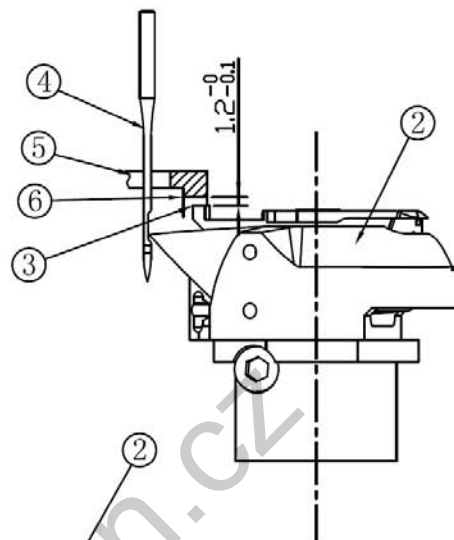
36. THE GAP BETWEEN NEEDLE AND HOOK SETTING

Rotate the knob (1), make the scale „0“ to aligned with the mark (3), release the screw (4), (5), (6), move the hook set (7) and make the gap 0,1 mm between needle (10) and hook tip (9), tie the screw (6).



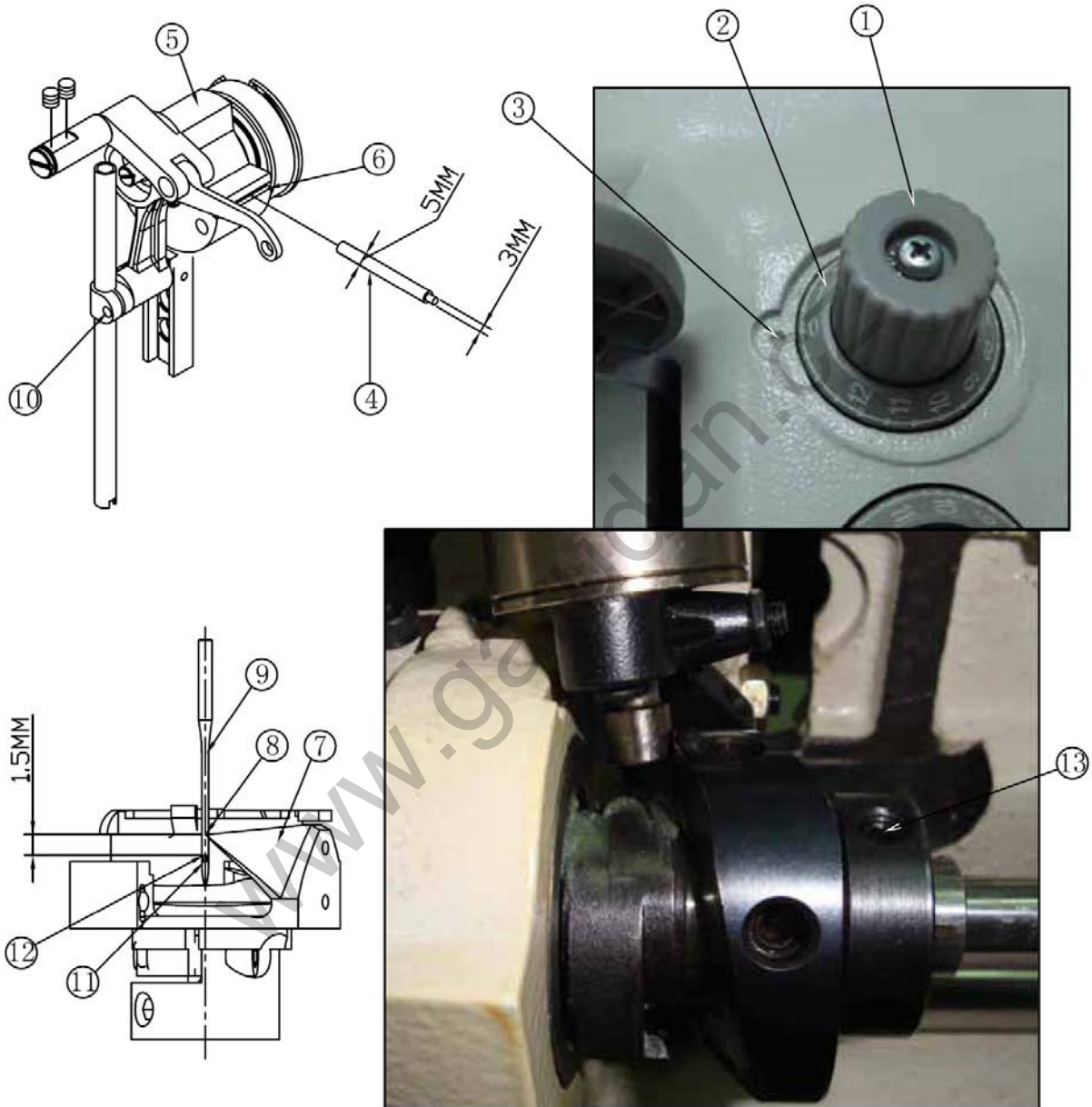
37. HOOK HEIGHT SETTING

Release the screw (1) and move hook (2), make the gap 1~1,2 mm between hook positioned slot surface and needle plate bottom surface, tie the screw (1).



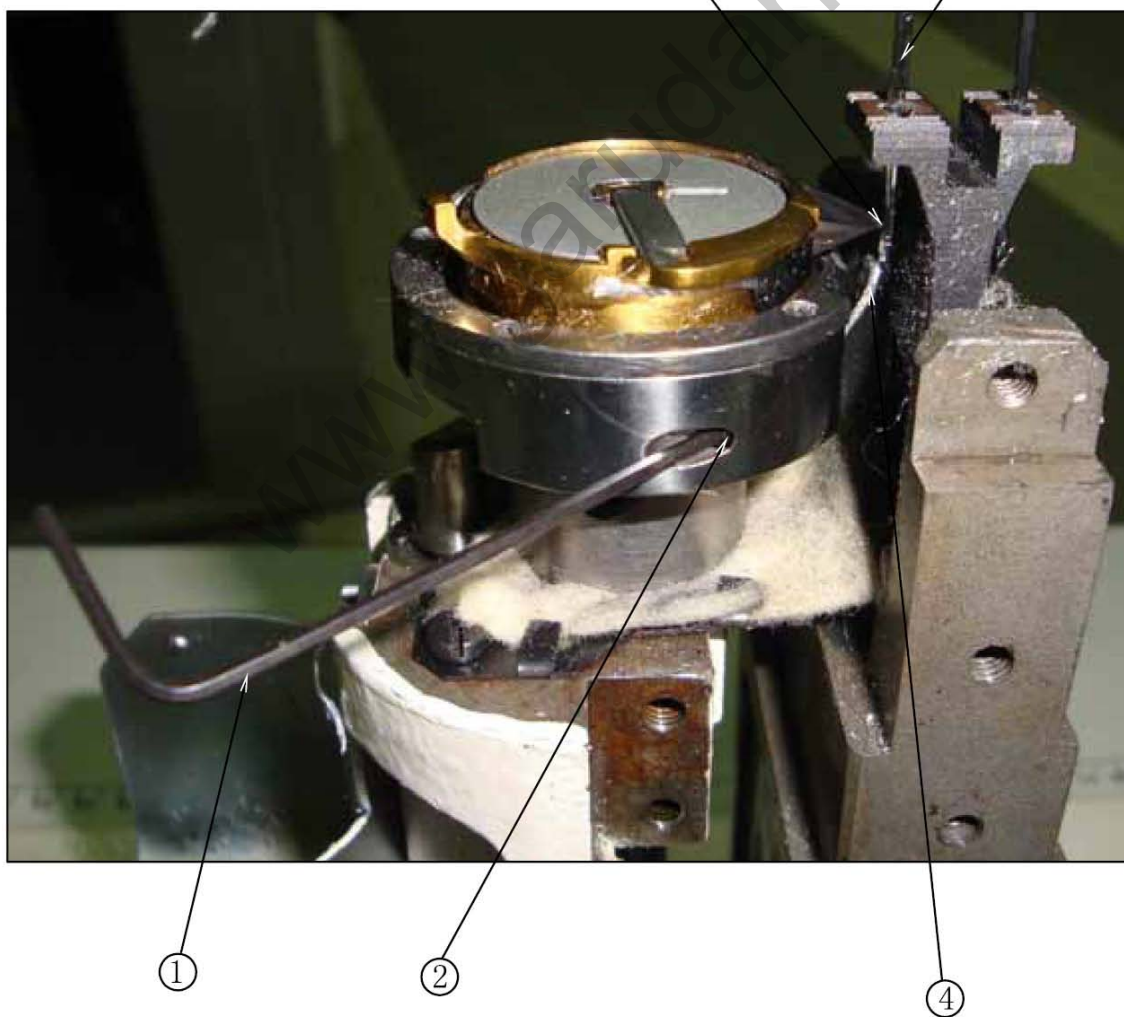
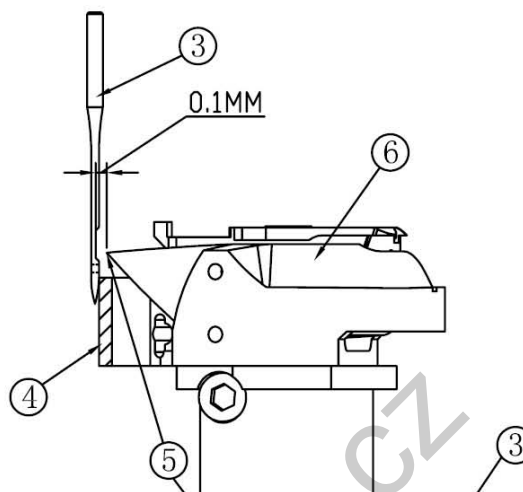
38. HOOK THREAD TIMING SETTING

Rotate the knob (1), make the scale „0“ to aligned with the mark (3), put the fixture (4) 5 mm into slot (6) of the eccentric (5). Rotate hook (7), make the hook tip (8) aligned with center of the needle (9), tie the screw (13).



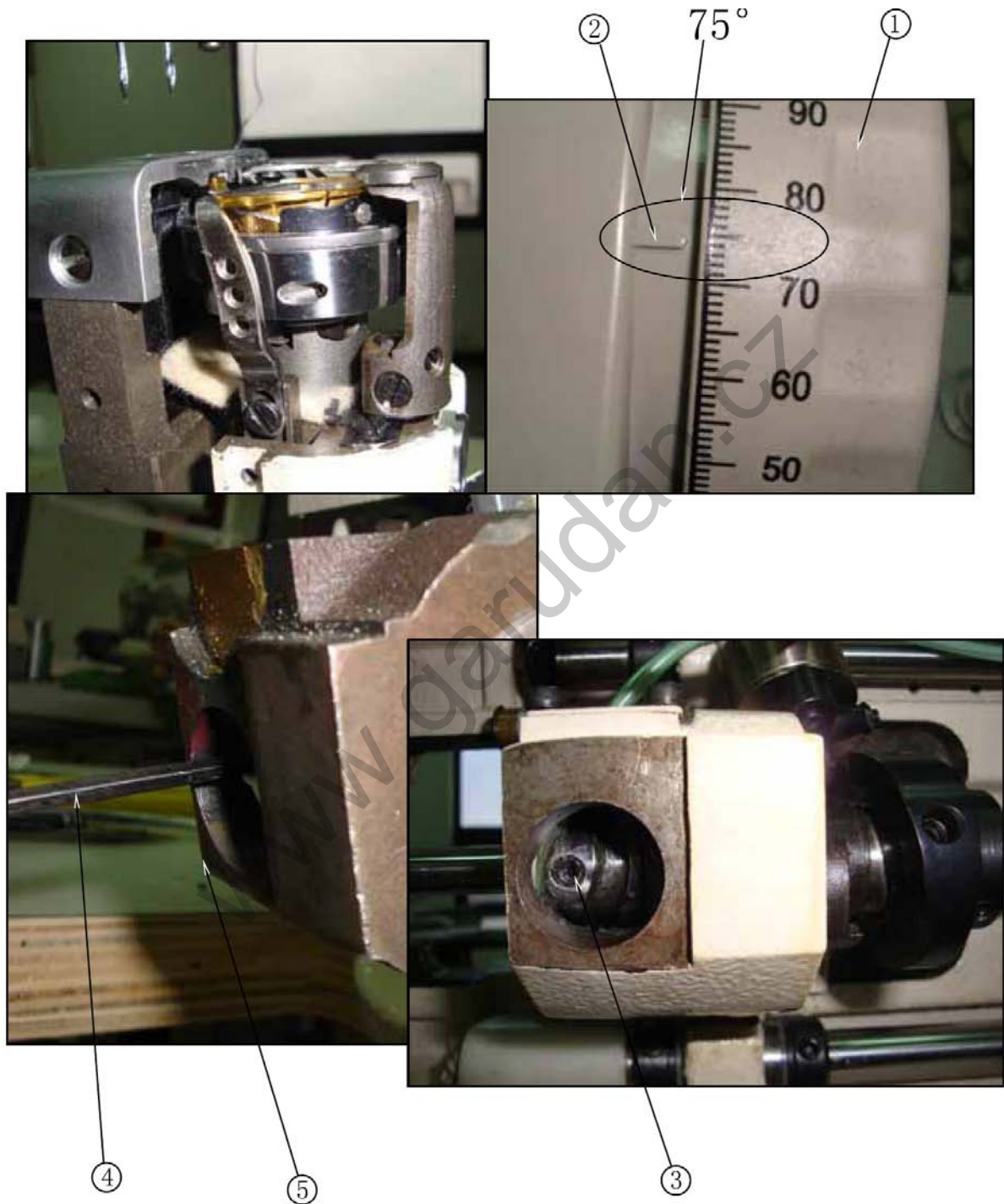
39. NEEDLE PROTECTED PLATE SETTING

Use allen key (1) and adjust the screw (2), make the needle protected plate and needle just touched. (The gap between needle (3) and hook tip (5) would be 0,1 mm).



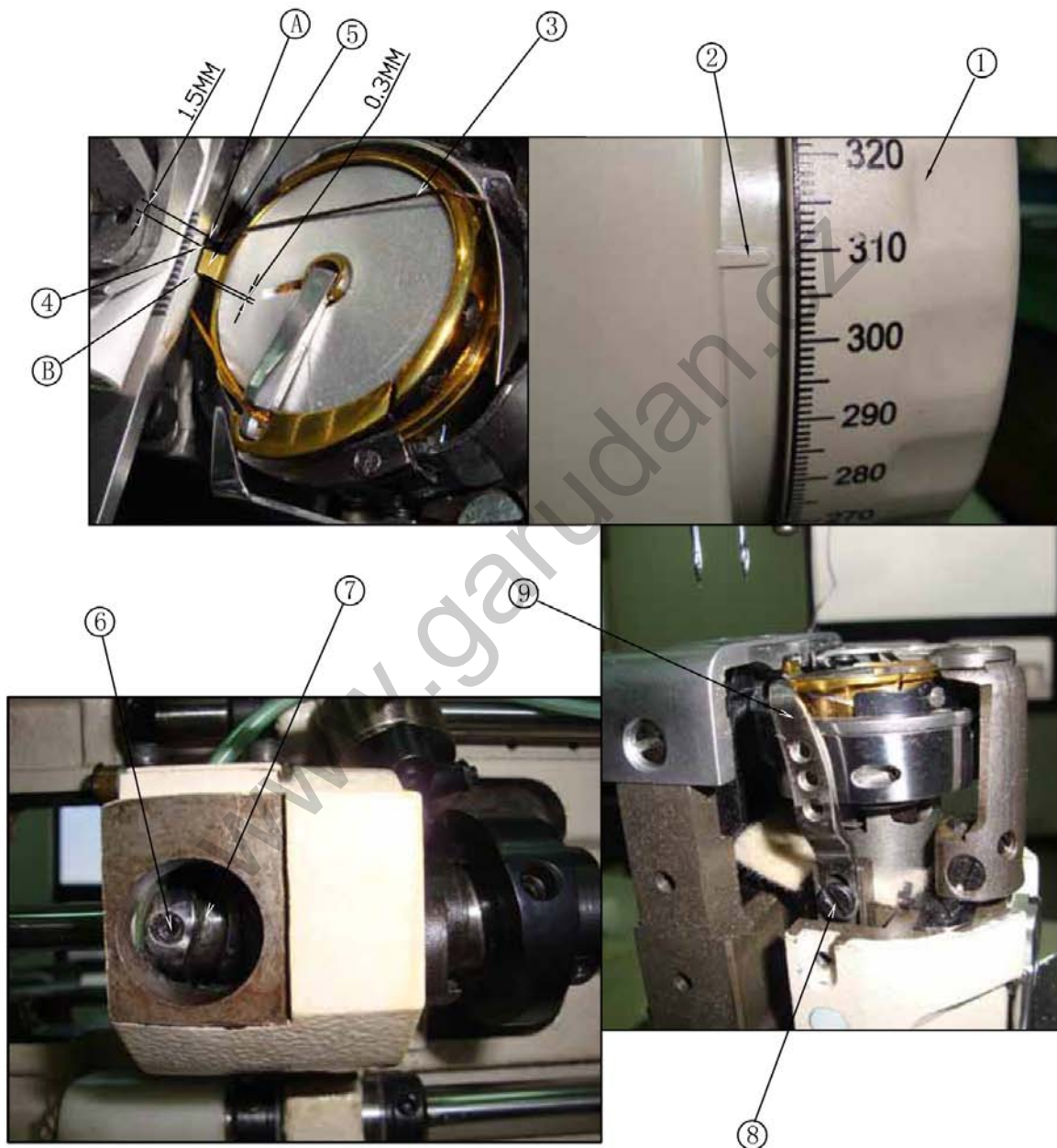
40. INNER HOOK DRIVING TIMING SETTING

Rotate the hand wheel (1), make the scale „75“ to aligned with the mark (2), release the screw (3) and make the alley key (4) to be vertical with the bottom of the hook, tie the screw (3).



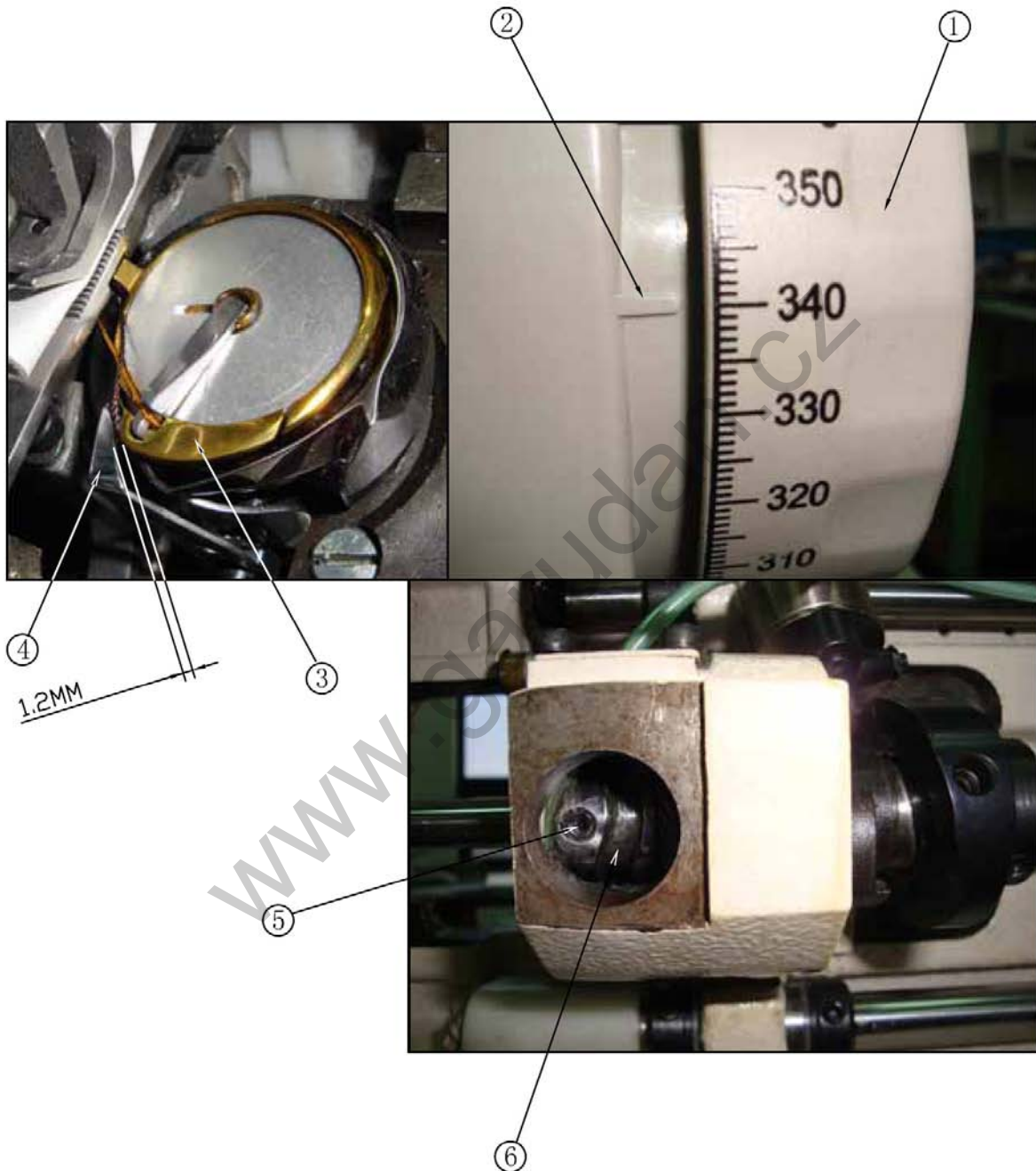
41. THREAD AND HOOK POSITION RELATION

Rotate the hand wheel (1), make the scale „310“ to aligned with the mark (2), (thread 3 is going to go into hook positioned slot 4), then the distance between A surface of positioned slot (4) and positioned slot (5) must be more that 1,5 mm, so the thread can go through smoothly (the distance between the B surface of hook positioned hook and positioned slot (5) must be more than 0,3mm). Release the screw (6), move the eccentric (7) position, make it match the above situation. Release the screw (8), adjust the height of inner hook opener (9).



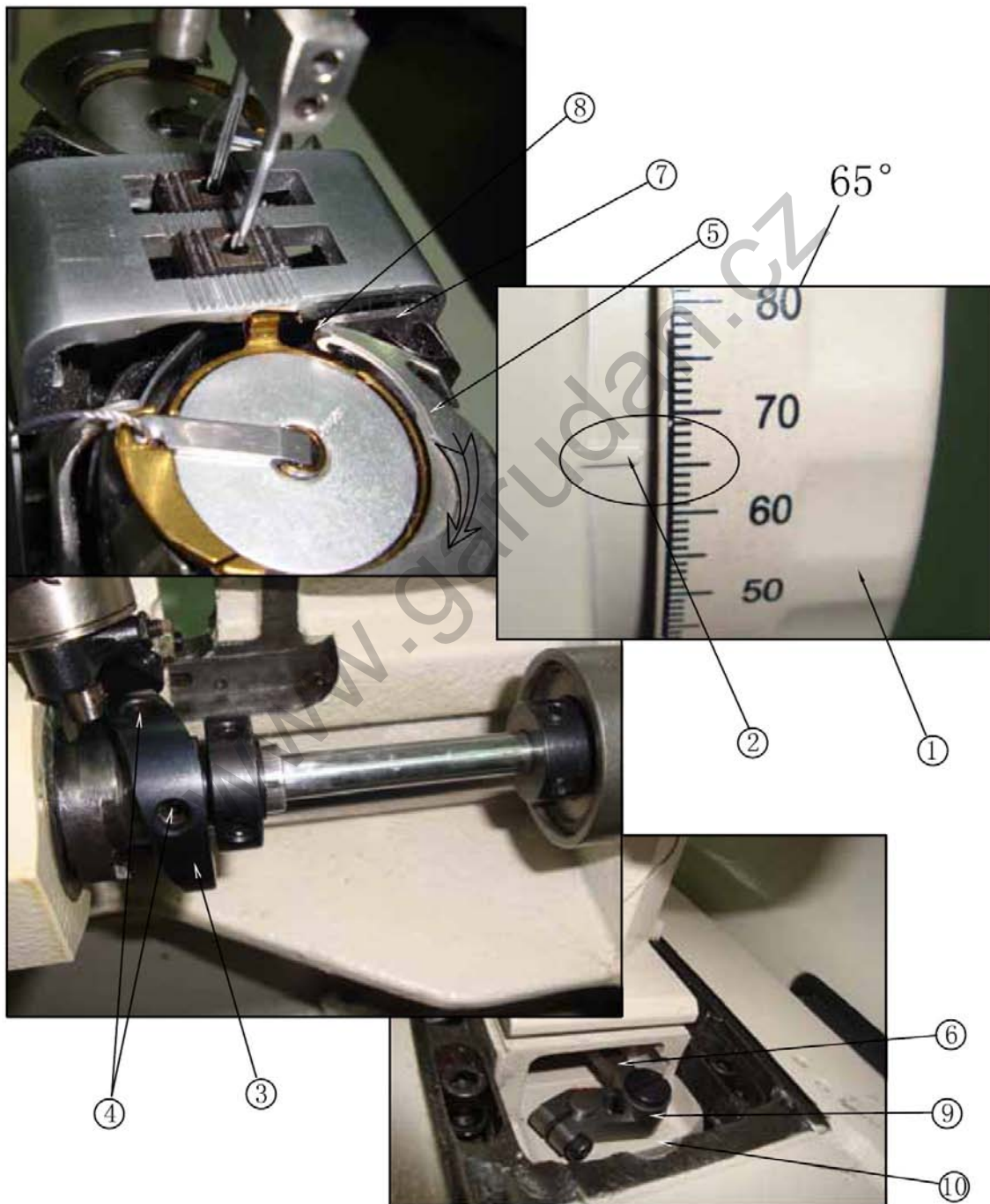
42. THREAD AND HOOK POSITION RELATION

Rotate the hand wheel (1), make the scale „340“ to aligned with the mark (2), then the distance between inner hook opener (4) and inner hook (3) must be more than 1,2 mm, release the screw (5) if necessary. Make sure that the angle of the eccentric (6) is same when you tie the screw (5).



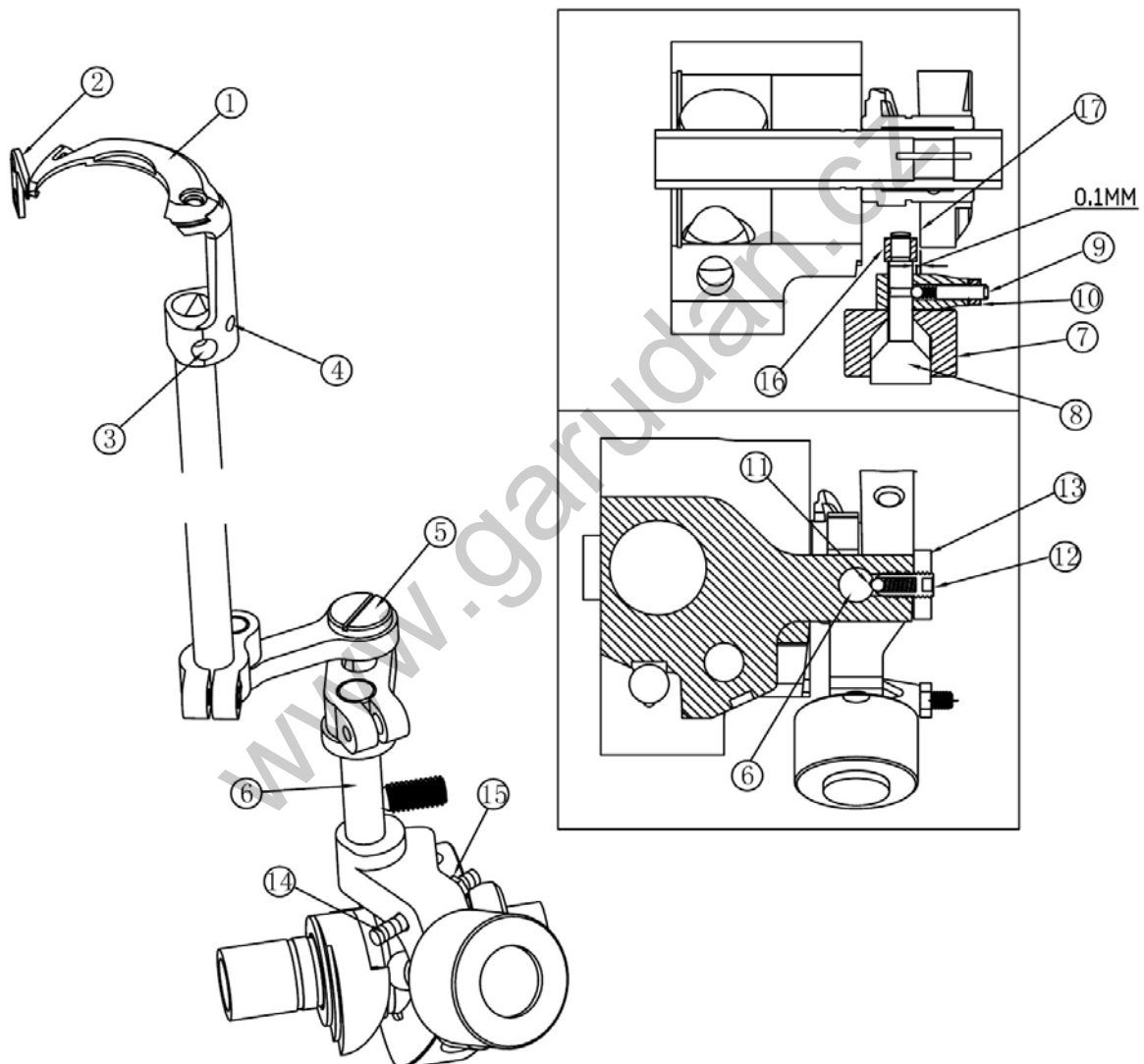
43. THREAD TRIMMER TIMING SETTING

Rotate the hand wheel (1), make the scale „65“ aligned with mark (2), adjust the angle of the eccentric (5), make the flexible knife (5) go according to the arrow direction, tie the screw (4). After the flexible knife cutting the thread, make the top of the flexible knife and the top of the fixed knife aligned as picture, the edge (9) of the link rope (6) and the edge of the (10) are almost aligned.



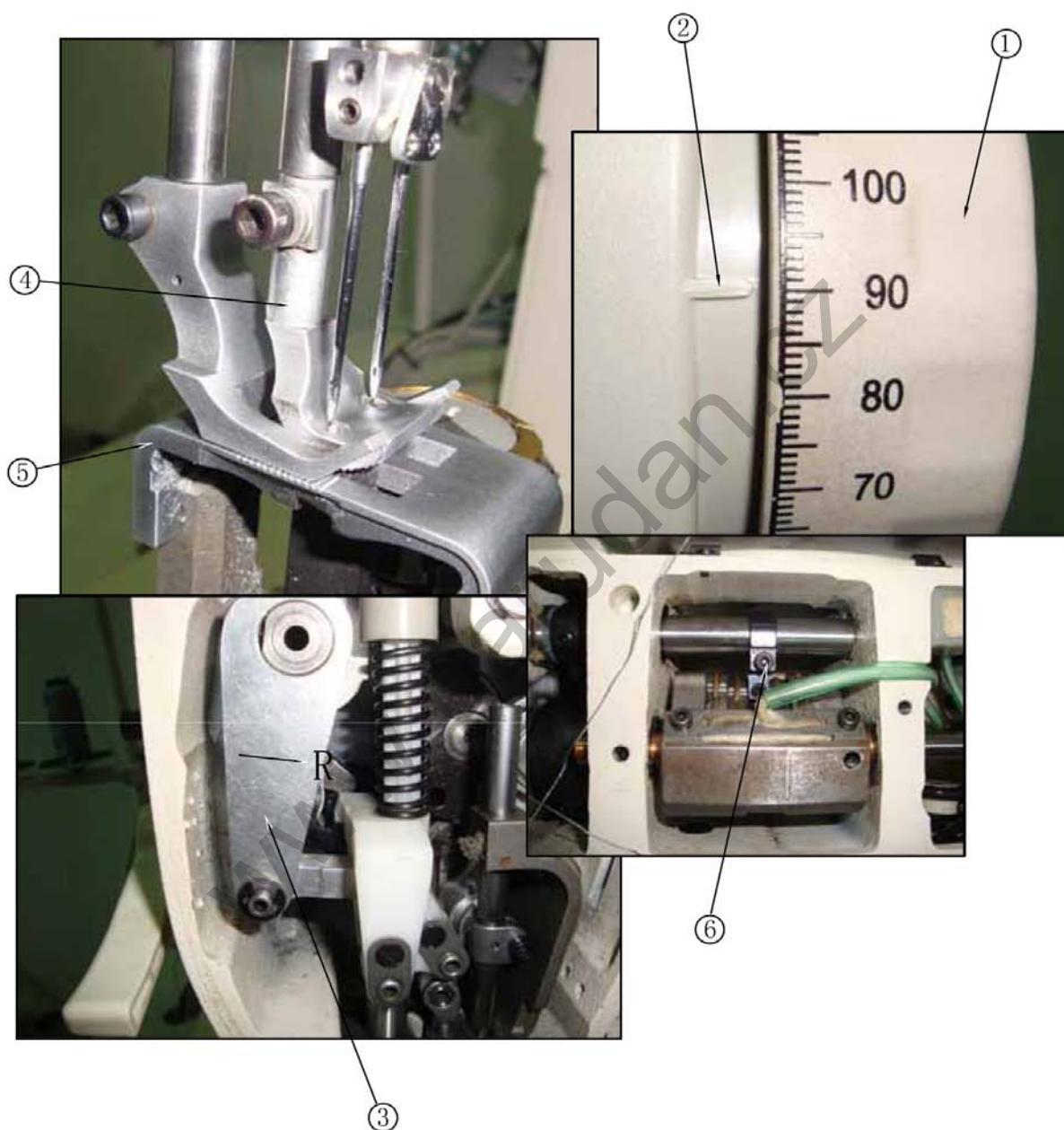
44. THREAD TRIMMER POSITION SETTING

The flexible knife (1) relative position with fixed knife (2), the height adjustment: release the screw (3) and adjust the screw (4), then tie the screw (3). The stroke adjustment of flexible knife: release the screw (5) and move it to the axis (6) direction, the stroke will become small and the opposite side will become bigger, tie the screw (5) after adjustment. Electromagnet (7) and the inner shaft (8) retractable strength is around 0,5 kg, tie the nut (10) after adjust the screw (9). The steady screw adjustment of axis (6): rotate axis (6), make the V type slot (11) on the axis /6) and the screw 12 aligned, tie the nut (13). Positioned screw (14) adjustment: adjust the positioned screw (14) and make the ball (16) and eccentric (17) a 0,1 mm gap, then tie the nut (15).



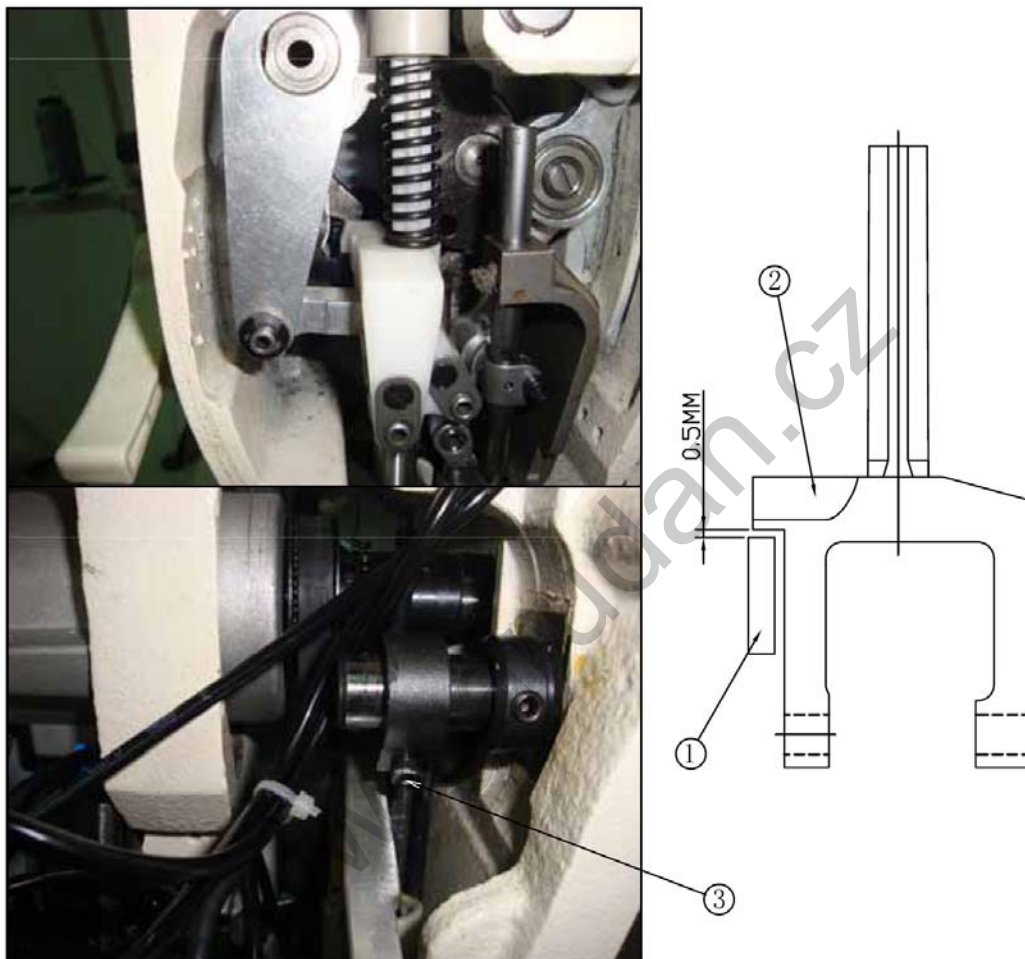
45. PRESSER FOOT INTERACTION AMOUNT SETTING

Rotate the hand wheel (1), mke the scale „90“ to aligned with the mark (2), move the link (3) forward to R direction until touch the inner presser foot (4) and needle plate, tie the screw (6).



46. PRESSER FOOT DRIVING HANDLE SETTING

The gap between foot driving handle (1) and holder (2) is 0,5 mm, tie the screw (3).



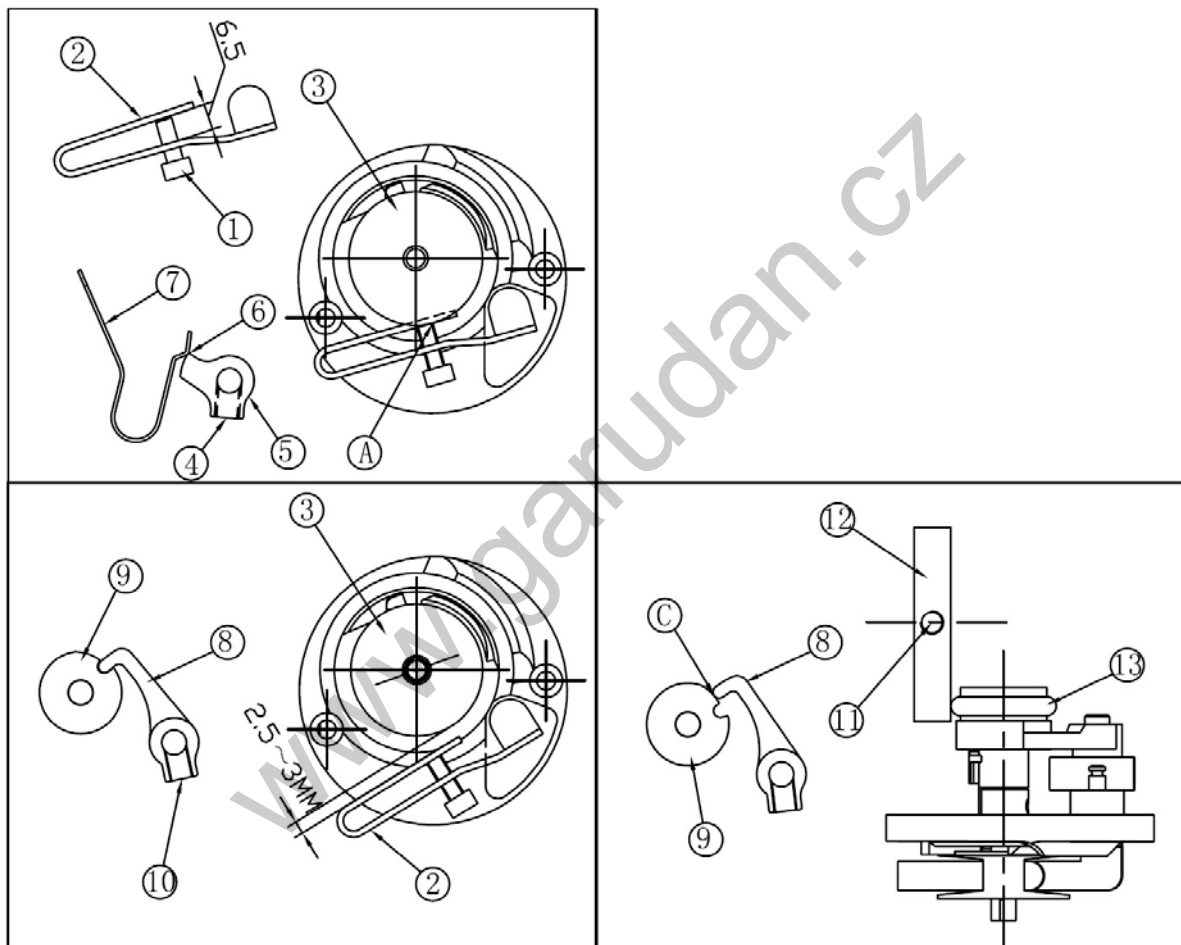
47. THE THREAD AND THREAD SPRING TENSION SETTING

Release the screw 1 and move the thread rack (2) to left, then the thread amount become more, it will become less when move to right, tie the screw after adjustment. Release the screw (3), rotate the supporter (4) clockwise, the thread spring stroke becomes less, rotate counterclockwise it would become more, tie the screw (3) adjustment (8mm for reference). Rotate the (6) counterclockwise, thread spring (5) tension become stronger, the reverse is oppositing.



48. BOBBIN THREAD WINDING SETTING

Adjust the screw (1) make the adjustace gap of the winding plate (2) 6,5 mm, then make the A surface of the winding plate (2) and the edge of bobbin case 3 aligned, release the screw (4), adjust the block (5) position, make it touch the steel plate (7) as the diagram (6), tie the screw (4). Adjust the positioned hook (8) and put into the eccentric (9), make the gap between the winding plate (2) and bobbin case (3) 2,5~3 mm, tie the screw (10). Rotate the positioned eccentric (9), make the C point of the positioned eccentric touch the positioned hook 8, release the screw (11), move the driving pulley to touch driven pulley, tie the screw (11).



49. MAINTENANCE

Cleaning work

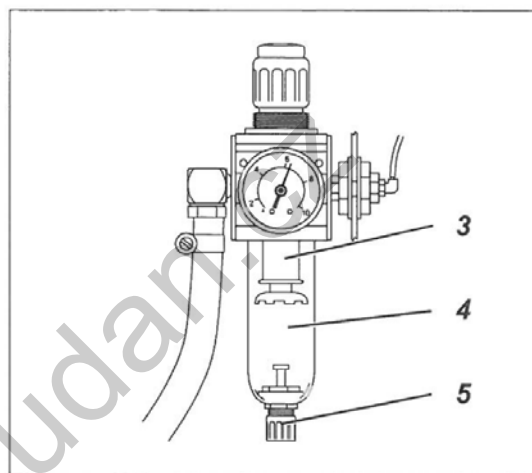
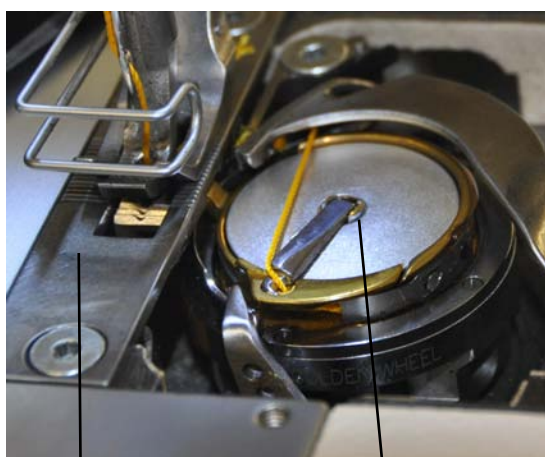
Turn off the main switch. Cleaning can only be carried out if the machine is turned off.

The maintenance work must be carried out in accordance with the intervals defined in charts (see column operation period).

When using materials which produce a lot of sewing dust, it is possible to use even shorter periods of maintenance.

Clean machine protects the machine from damage and technical problems.

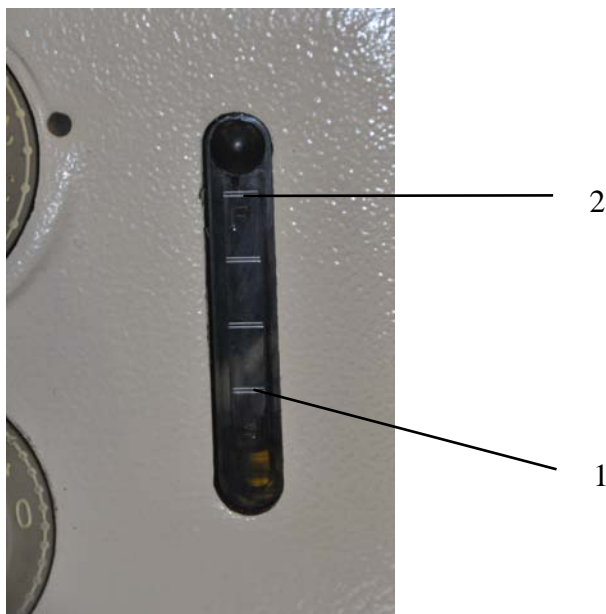
Always turn off the main switch before leaning the machine head!



Maintenance work	Description	Operation period
Machine head Remove sewing dust and thread remains (e.g. by compressed air gun)	Areas which need special attention: - Lower part of needle plate (2) - Area around the hook (1) - Bobbin case - Thread trimming mechanism - Area around needle Attention: Hold the air gun the way the sewing dust does not fall into the oil tank.	8
Servomotor Clean the motor fan sieve (e.g. by compressed air gun)	Remove sewing dust and thread remains from the openings.	8

Driving unit Clean the motor fan sieve (e.g. by compressed air gun) Check the tension of V-belt	Remove sewing dust and thread remains from the openings. If pressed by finger in the middle, the V-belt must bend down by approximately 10mm.	8 160
Pneumatic system Check level of water in the pressure regulator. Clean filter insert. Check if the system is well sealed.	Level of water must not rise as far as the level of filter 3. Drain water by turning the screw 5 under pressure from water separator 4. Filter insert 3 separates dirt from condensed water. - Turn off supply of compressed air. - Screw out the screw 5. Pneumatic system of machine must be without pressure. - Screw out water separator 4. - Screw out filter insert 3. Flush dirty filter case and filter insert with gasoline (not by solvent) and dry. - Assemble the unit again.	40 500 500

50. LUBRICATION BY OIL



For lubrication of the machine use only oil recommended by manufacturer/supplier or oil with the following specification:

- Viscosity at 40°C = 10mm/s
- Flash point = 150°C

Maintenance work	Description	Operation period
Lubrication of head	<p>Machine head is equipped with wick feed oil central lubrication system. Bearings are lubricated by oil from the oil tank.</p> <p>Level of oil must be maintained above the mark of minimum oil level 1 on the oil tank.</p> <p>Fill the oil to the tank up to the mark of maximum oil level 2.</p>	8

Attention: danger of injury!

Oil can cause skin rashes.

Try to avoid contact with skin. After contact of oil with skin, rinse the affected place properly.

Manipulation and disposal of mineral oils is subjected to valid legislation. Used oil should be handed over to authorized waste center. Be careful not to spill the oil.