

ENGLISH

**AK-154
INSTRUCTION MANUAL**

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1. FEATURES

This is the auto-lifter incorporating the cam which is driven by the stepping motor.

- ① After the presser foot is lifted by the auto-lifter, it is retained at its upper position by the cam. As a result, the power consumption is reduced.
- ② Since this auto-lifter does not produce solenoid-like impact noise, the comfortable work environment is maintained.
- ③ Function for reducing the presser foot pressure at the beginning of sewing
If the needle thread is not properly drawn down under the material fabric while the thread presser (NB device) is used, the assist function for reducing the presser foot pressure at the beginning of sewing to help the needle thread to be smoothly drawn under the material fabric can be enabled.

*** The AK device operates with the factory-set value by turning it ON.**

- ④ Presser-foot lifting height setting function

The lifting height of the presser foot can be set in two different stages. When the back part of pedal is depressed during sewing, the thread trimmer trims thread, then the presser foot automatically goes up to its 1st lifting height.

When the back part of pedal is strongly depressed while the sewing machine is at rest or after the completion of thread trimming, the presser foot goes up to its 2nd lifting height.

	Factory-set amount of lift of the presser foot at the time of shipment	Features
1st lifting height of presser foot	5.0 mm	0.1 to 8.5 mm
2nd lifting height of presser foot	8.5 mm	8.5 to 13.5 mm

- ⑤ Presser operating speed changing function

For reducing the operating noise or further reducing the material damage by the presser foot when it is lowered to contact the material, the presser operating speed can be changed appropriately.

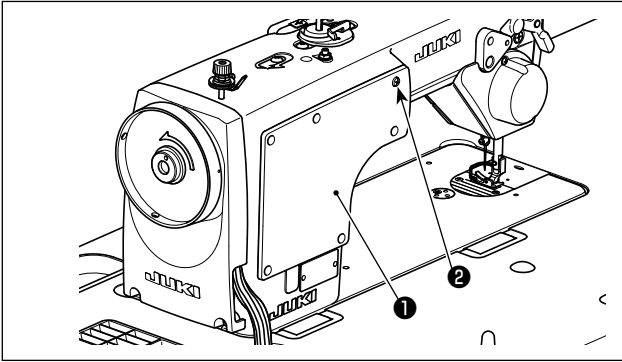
2. INSTALLATION

* For the AK device which is purchased in the shipped state, it has already been factory-adjusted. The AK device can be put into use after connecting its connector (CN37) to the destination of connection in the control box. (Refer to "2. Installation procedure (10) to (11)").



WARNING :

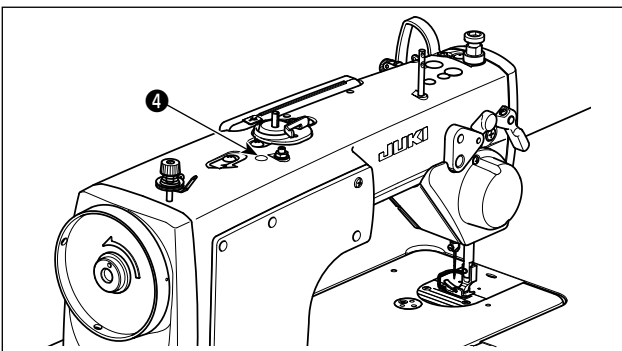
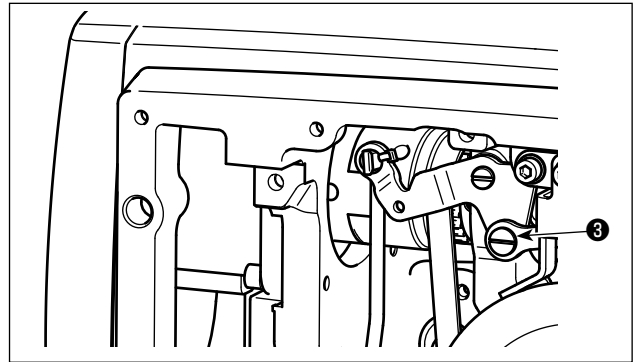
Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.



- (1) Loosen setscrew ② of side plate ①. Remove side plate ①.

* Side plate ① and setscrew ② removed as described above are not used again since they are replaced with the parts to be retrofitted to the sewing machine.

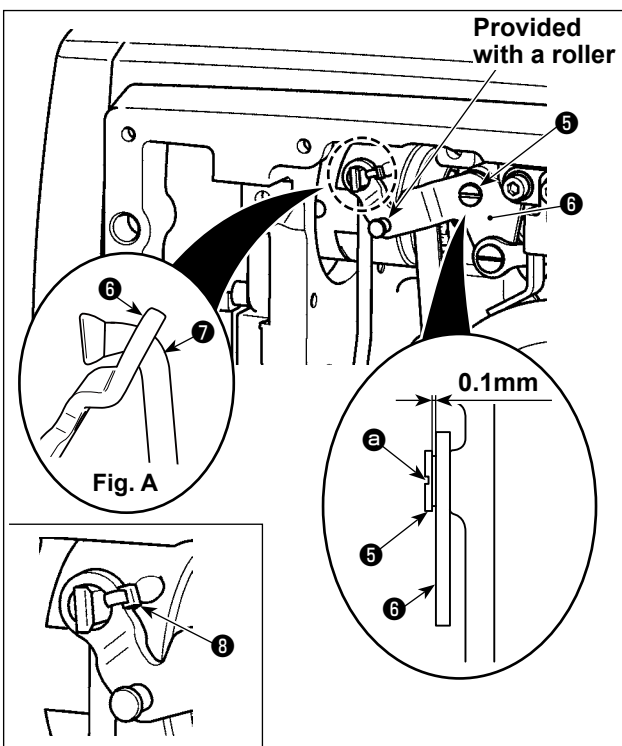
- (2) Remove knee-lifter bar hinge screw ③.



- (3) Loosen presser-lever fulcrum shaft setscrew ④ from above the top of the arm. Remove presser-lever fulcrum shaft ⑤.

- (4) Install AK lever asm. ⑥ which is provided with a roller instead of the removed parts.

- (5) Attach knee-lifter connecting rod ⑦ to the AK lever. Fix cable clip band ⑧ in the hole through which knee-lifter connecting rod ⑦ of AK lever is to be passed through. Then, insert knee-lifter connecting rod ⑦ into the cable clip band.

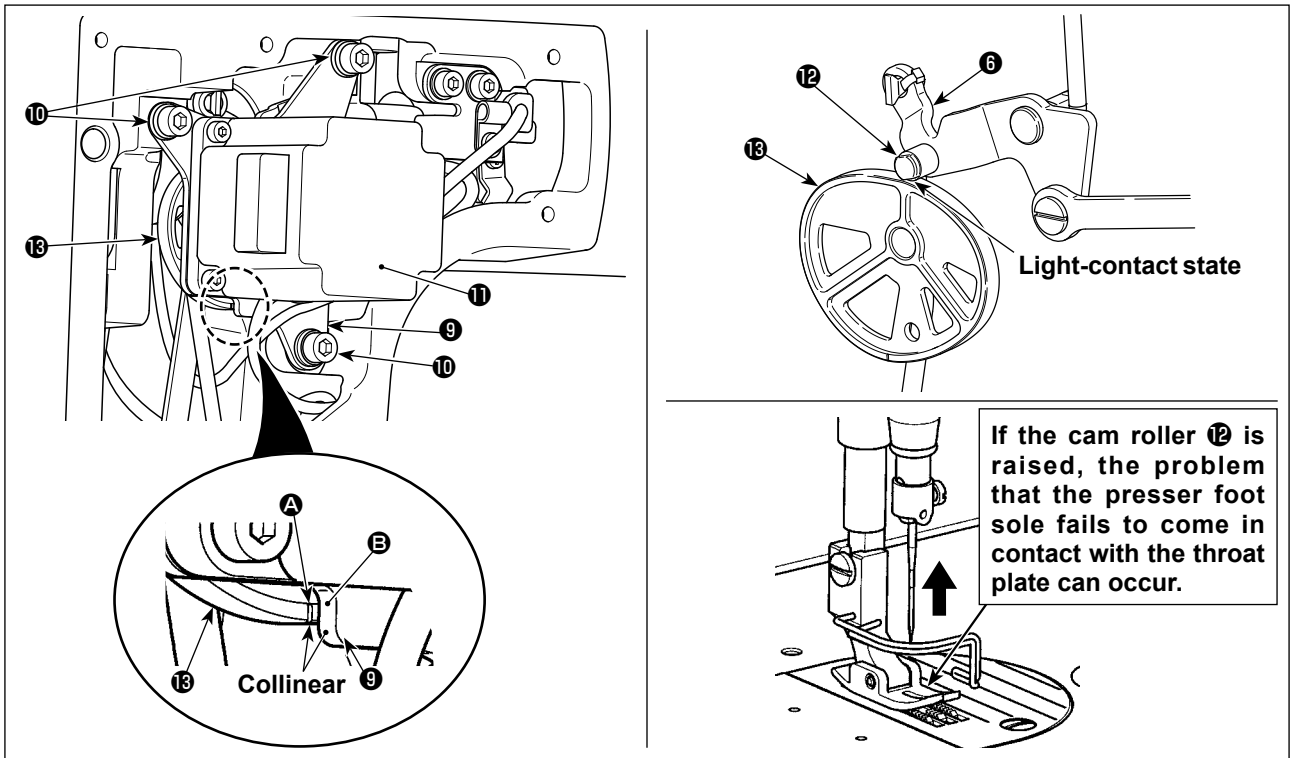


1. Apply the grease supplied with the unit to each joining section.

2. Press AK lever asm. ⑥ against the sewing machine frame. Then, move the former so that it is spaced 0.1 mm from the latter. In this state, fasten presser lever fulcrum shaft setscrew ④ to secure presser lever fulcrum shaft ⑤.

Check to make sure that AK lever asm. ⑥ moves smoothly.

Check to make sure that the slit in presser lever fulcrum shaft ⑤ is positioned horizontally.

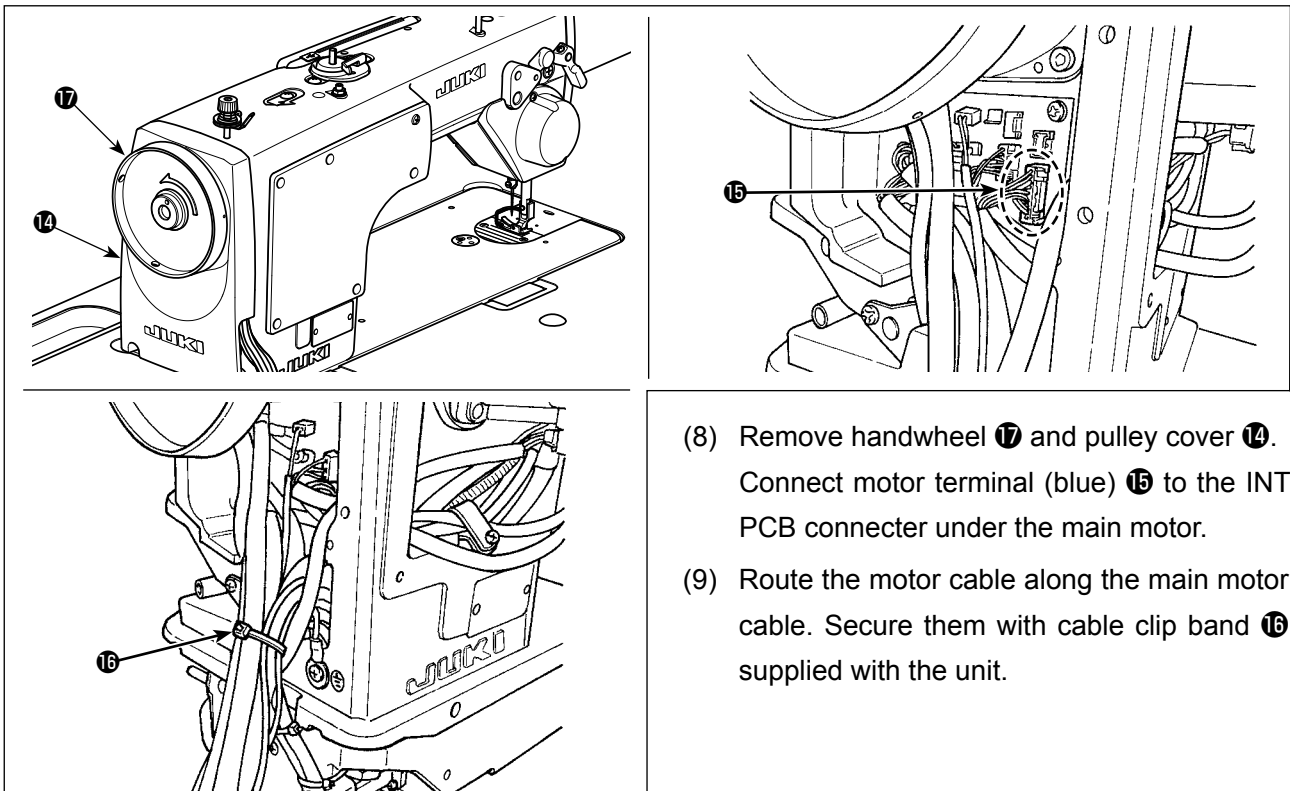


- (6) There is a marker line on the surface of cam 13.
Adjust so that marker line A on the cam and end face B of motor fixing plate 9 are collinear to each other.
*Do not disassemble the cam 13 and the motor since their origin positions have been factory-adjusted appropriately at the time of delivery.
- (7) Temporarily fix presser motor asm. 11 with three presser motor asm. setscrews 10.
At this time, adjust motor asm. 11 up and down to bring presser motor asm. 11 to such a position that it does not push up the cam roller 12. (The presser foot sole fails to come in contact with the throat plate.)

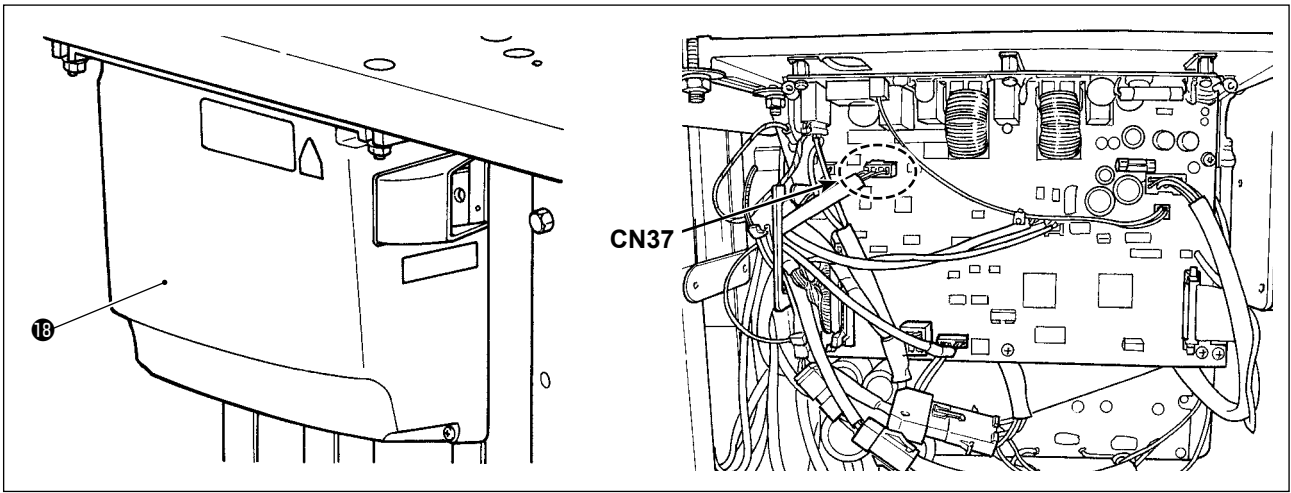


Adjust presser motor asm. 11 so that cables and wires located inside the sewing machine are positioned above the fixing plate 9. If the cables and wires are positioned under the fixing plate 9, they will interfere with the cam 13.

Securely tighten three presser motor asm. setscrews 10 while bringing cam roller 12 and cam 13 into light contact with each other. (Check to make sure that the presser foot sole does not float above the feed dog.)



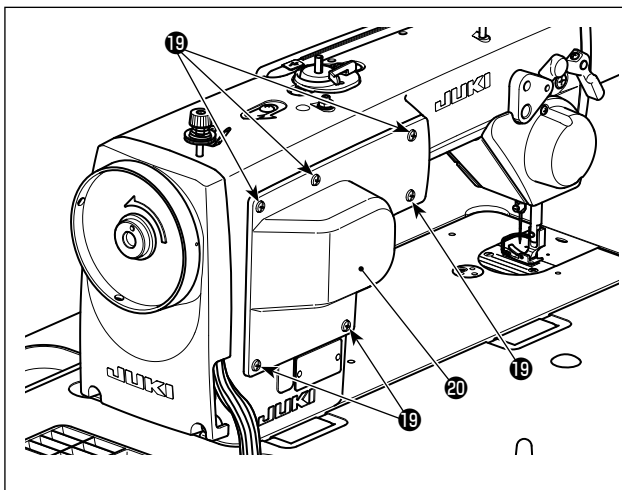
- (8) Remove handwheel 17 and pulley cover 14.
Connect motor terminal (blue) 15 to the INT PCB connector under the main motor.
- (9) Route the motor cable along the main motor cable. Secure them with cable clip band 16 supplied with the unit.



(10) Remove four fixing screws from the four corners of the control box cover. Remove control box cover 18.

(11) Connect the motor cable connector to the connector (CN37).

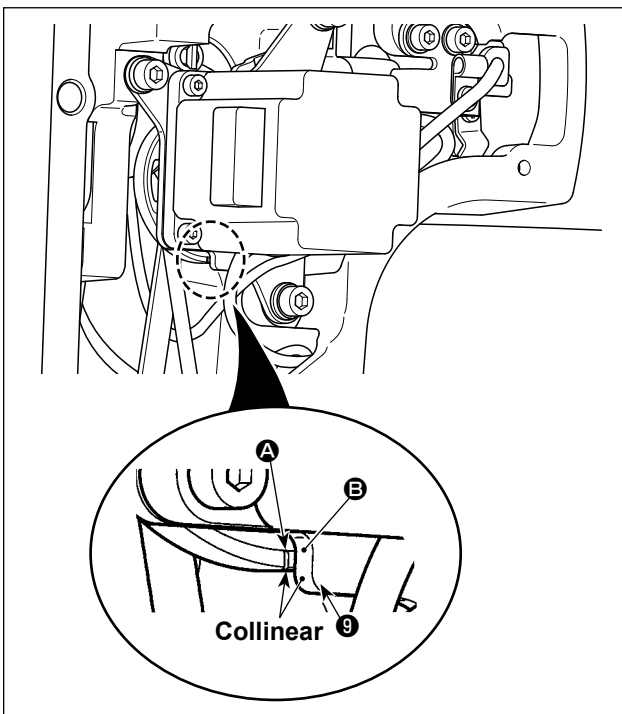
Check to make sure that the connectors are securely connected. Then, attach control box cover 18.



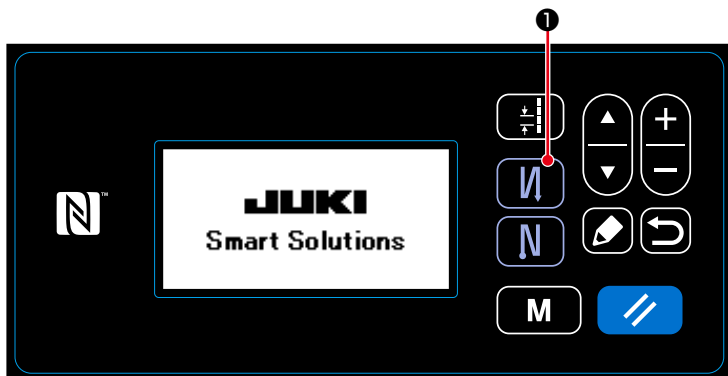
(12) Fix cover 20 supplied with the unit with six screws 19 (shank length 12 mm)




Make sure that the marker line A on the cam with end face B is aligned with motor fixing plate 9 before closing cover 20.

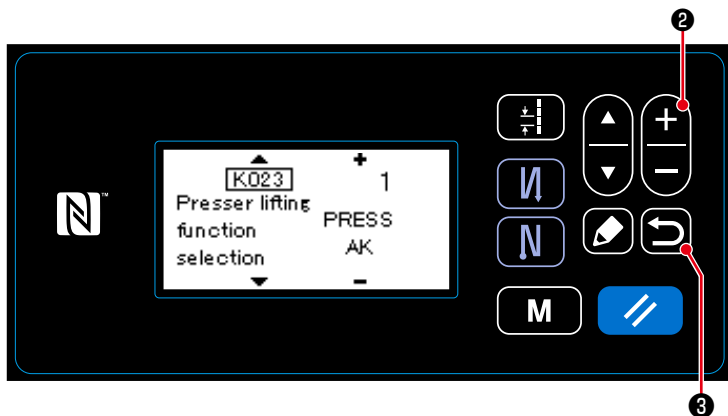





3. HOW TO SELECT THE FUNCTION OF AUTO-LIFTER

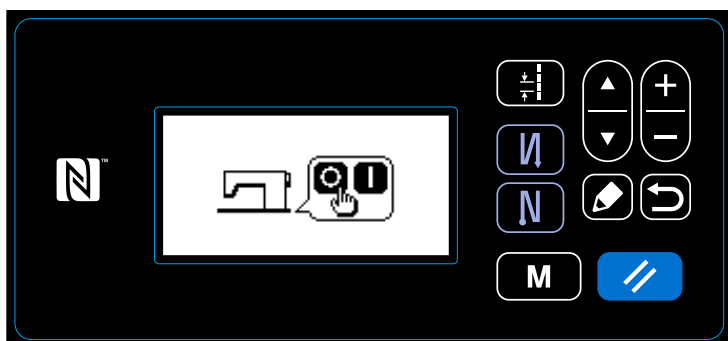



When installing the auto-lifter device (AK), the function of auto-lifter is actuated.

- (1) Turn ON the power switch while keeping  ① held pressed.



- (2) Set the set number to [1] with  
 ②. Press  ③. Then, the power-OFF screen is displayed. Turn the power OFF.



-  **1.** To perform re-returning ON of the power, be sure to perform after the time of one second or more has passed. (If ON/OFF operation of the power is performed quickly, setting may be not changed over well.)

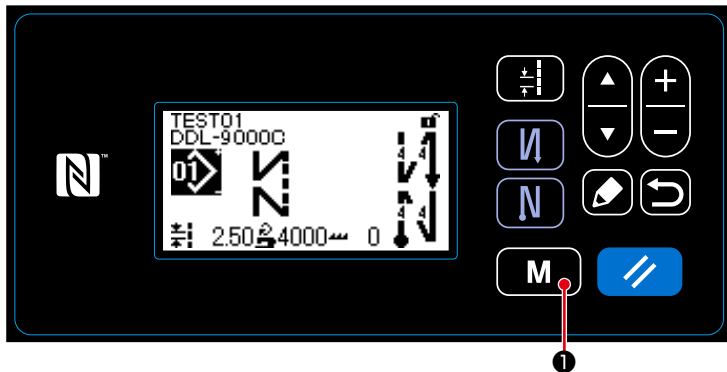
2. Auto-lifter is not actuated unless this function is properly selected.

3. In the case the auto-lifter is not attached, [K023] must be set to [0] without exceptions.

4. OTHERS (Advanced edition)

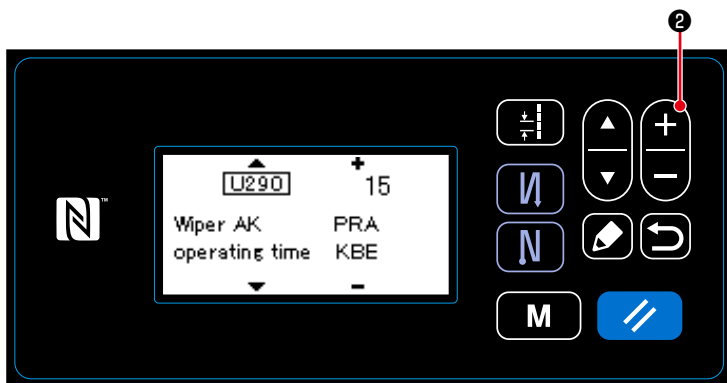
4-1. Function for reducing the presser foot pressure at the beginning of sewing

If the needle thread is not properly drawn down under the material fabric while the thread presser (NB device) is used, the assist function for reducing the presser foot pressure at the beginning of sewing to help the needle thread to be smoothly drawn under the material fabric can be enabled.



When installing the auto-lifter device (AK), the function of auto-lifter is actuated.

- (1) Turn ON the power switch.
- (2) Press **M** ①.

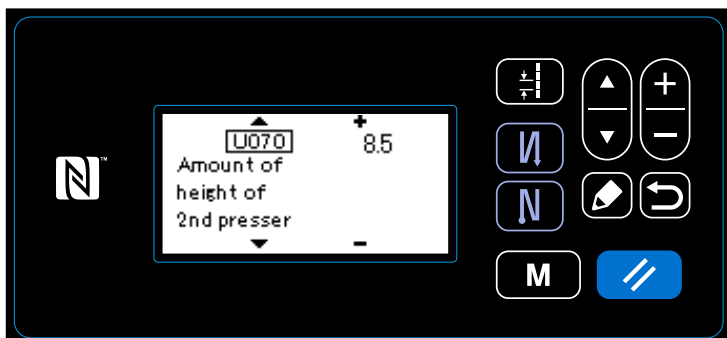
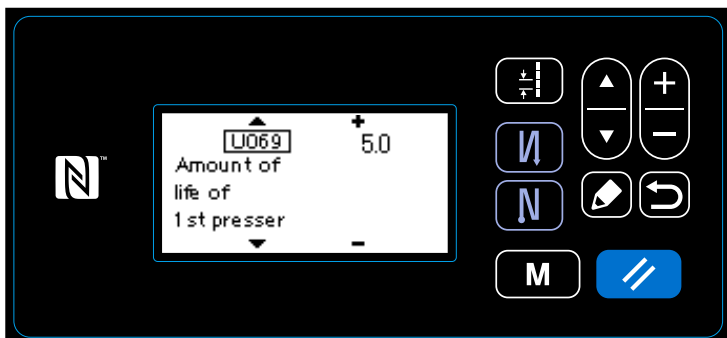


- (3) Move the cursor to [U290 Thread presser AK operating time]. Input the lifting time using with **+** **-** ②.
Factory-set value : 20
Adjustable range : 0 to 50
The longer the lifting time is increased, the higher the presser foot sole is brought up above the throat plate.



The amount of uplift of the presser foot above the throat plate varies according to the material thickness of the item to be sewn and the presser foot pressure. Be sure to check the actual condition before starting sewing.

4-2. Presser foot lifting height setting function in the case the sewing machine stops with its needle-bar up.



It is possible to set the lifting height of presser foot, when the sewing machine stops with its needle-bar up, in two different stages. The presser foot is brought to its 2nd lifting height by strongly depressing the back part of pedal.

The amount of uplift of the presser foot above the throat plate varies according to the material thickness of the item to be sewn and the presser foot pressure. Be sure to check the actual condition before starting sewing.

[1st lifting height of presser foot]

Factory-set value : 5.0

Adjustable range : 0.1 to 8.5

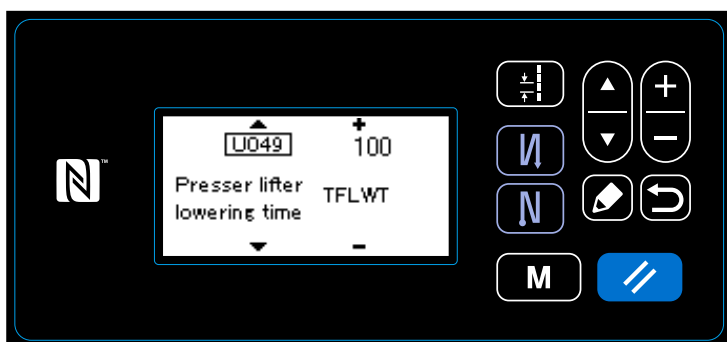
[2nd lifting height of presser foot]

Factory-set value : 8.5

Adjustable range : 8.5 to 13.5

In the case the set value of the 2nd lifting height of presser foot is changed, the needle tip protrudes from the undersurface of presser foot. In such a case, be sure to carefully check whether the needle tip interferes with the material or whether the needle breaks. In this case, carefully prevent the needle-tip interference with the material item or the needle breakage.

4-3. Presser operating speed changing function



For reducing the operating noise or further reducing the material damage by the presser foot when it is lowered to contact the material, the presser operating speed can be changed appropriately.

Factory-set value : 100

Adjustable range : 0 to 500