JUKI®

Computer-controlled High-speed Bartacking Machine

LK-1900B Series

(LK-1900B, LK-1901B, LK-1902B, LK-1903B, LK-1900BB, LK-1903BB)

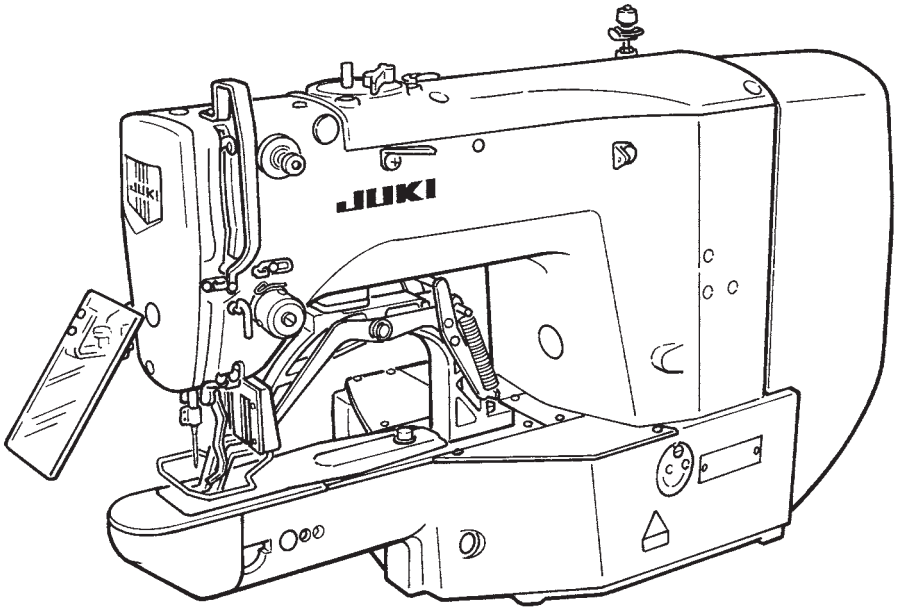
LK-1900BN Series

(LK-1900BN, LK-1901BN, LK-1902BN, LK-1903BN, LK-1900BNB, LK-1903BNB)

LK-1900S Series

(LK-1900SS, LK-1903SS)

ENGINEER'S MANUAL



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No. E414-05.1

PREFACE

This Engineer's Manual is written for the technical personnel who are responsible for the service and maintenance of the machine.
The Engineer's Manual for these machines intended for the maintenance personnel and operators at an apparel factory contains operating instruction in detail. And this manual describes "Standard Adjustment", "Adjustment Procedures", "Results of Improper Adjustment", and other important information which are not covered in the Instruction Manual.
When carrying out the maintenance work on the sewing machine, be sure to refer also to the Engineer's Manual and the Parts List.
In addition, for the motor for the sewing machine with thread trimmer, refer to the separate Instruction Manual or This manual gives the "Standard Adjustment" on the former page under which the most basic adjustment value is described, and on the latter page "Results of Improper Adjustment" under which stitching errors and troubles arising from mechanical failures and "How to adjust" are described.

TO ENSURE SAFE USE OF YOUR SEWING MACHINE

Adjustment :
It means replacement of parts, disassembly, and repair assembly.

For the sewing machine, automatic machine and ancillary devices (hereinafter collectively referred to as "machine"), it is inevitable to conduct sewing work near moving parts of the machine. This means that there is always a possibility of unintentionally coming in contact with the moving parts. Operators who actually operate the machine and maintenance personnel who are involved in maintenance and repair of the machine are strongly recommended to carefully read to fully understand the following **Safety precautions** of this engineer's manual before using/maintaining the machine. The content of the **Safety precautions** of this engineer's manual includes items which are not contained in the specifications of your product.
The risk indications are classified into the following three different categories to help understand the meaning of the labels of this engineer's manual and the product. Be sure to fully understand the following description and strictly observe the instructions.

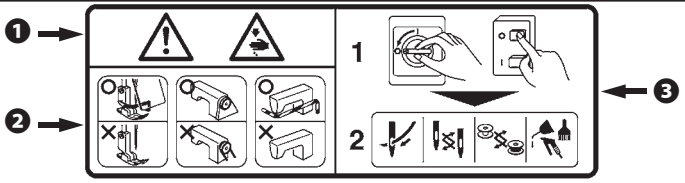
(I) Explanation of risk levels

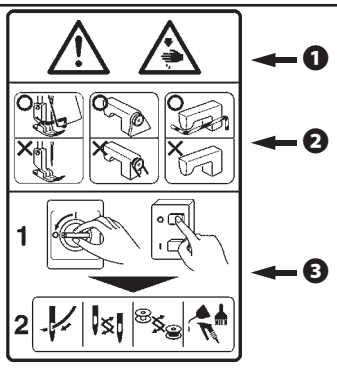
	**DANGER :** **This indication is given where there is an immediate danger of death or serous injury if the person in charge or any third party mishandles the machine or does not avoid the dangerous situation when operating or maintaining the machine.**
	**WARNING :** **This indication is given where there is a potentiality for death or serious injury if the person in charge or any third party mishandles the machine or does not avoid the dangerous situation when operating or maintaining the machine.**
	**CAUTION :** **This indication is given where there is a danger of medium to minor injury if the person in charge or any third party mishandles the machine or does not avoid the dangerous situation when operating or maintaining the machine.**
	**Items requiring special attention**

(II) Explanation of pictorial warning indications and warning labels

Pictorial warning indication		**There is a risk of injury if contacting a moving section.**	Pictorial warning indication		**Be aware that holding the sewing machine during operation can hurt your hands.**
		**There is a risk of electrical shock if contacting a high-voltage section.**			**There is a risk of entanglement in the belt resulting in injury.**
		**There is a risk of a burn if contacting a high-temperature section.**			**There is a risk of injury if you touch the button carrier.**
		**Be aware that eye deficiency can be caused by looking directly at the laser beam.**	Indication label		**The correct direction is indicated.**
		**There is a risk of contact between your head and the sewing machine.**			**Connection of a earth cable is indicated.**

Warning label





❶ • **There is the possibility that slight to serious injury or death may be caused.**
• **There is the possibility that injury may be caused by touching moving part.**

❷ • **To perform sewing work with safety guard.**
• **To perform sewing work with safety cover.**
• **To perform sewing work with safety protection device.**

❸ • **Be sure to turn the power OFF before carrying out "machine-head threading," "needle changing," "bobbin changing" or "oiling and cleaning.**

Electrical-shock danger label

SAFETY PRECAUTIONS

Accident means "to cause personal injury or death or damage to property."

DANGER

1. When it is necessary to open the control box containing electrical parts, be sure to turn the power off and wait for five minutes or more before opening the cover in order to prevent accident leading to electrical shock.

CAUTION

Basic precaution

1. Be sure to read the engineer's manual and other explanatory documents supplied with accessories of the machine before using the machine. Carefully keep the engineer's manual and the explanatory documents at hand for quick reference.
2. The content of this section includes items which are not contained in the specifications of your product.
3. Be sure to wear safety goggles to protect against accident caused by needle breakage.
4. Those who use a heart pacer have to use the machine after consultation with a medical specialist.
5. Turn OFF the power before starting the work in order to protect against accident that can result in personal injury.
   If it is inevitable to carry out work with the power ON, utmost care should be taken to prevent from depressing the foot pedal or pressing the start switch by mistake.
6. Make sure, after the completion of replacement work, that neither connectors nor cables are damaged, slipped off or loosened in order to protect against accident that can result in personal injury.

Safety devices and warning labels

1. Be sure to operate the machine after verifying that safety device(s) is correctly installed in place and works normally in order to prevent accident caused by lack of the device(s).
2. If any of the safety devices is removed, be sure to replace it and verify that it works normally in order to prevent accident that can result in personal injury or death.
3. Be sure to keep the warning labels adhered on the machine clearly visible in order to prevent accident that can result in personal injury or death. If any of the labels has stained or come unstuck, be sure to change it with a new one.

Application and modification

1. Never use the machine for any application other than its intended one and in any manner other than that prescribed in the engineer's manual in order to prevent accident that can result in personal injury or death. JUKI assumes no responsibility for damages or personal injury or death resulting from the use of the machine for any application other than the intended one.
2. Never modify and alter the machine in order to prevent accident that can result in personal injury or death. JUKI assumes no responsibility for damages or personal injury or death resulting from the machine which has been modified or altered.

Education and training

1. In order to prevent accident resulting from unfamiliarity with the machine, the machine has to be used only by the operator who has been trained/educated by the employer with respect to the machine operation and how to operate the machine with safety to acquire adequate knowledge and operation skill. To ensure the above, the employer has to establish an education/training plan for the operators and educate/train them beforehand.

Items for which the power to the machine has to be turned off

Turning the power off: Turning the power switch off, then removing the power plug from the outlet. This applies to the following.

1. Be sure to immediately turn the power off if any abnormality or failure is found or in the case of power failure in order to protect against accident that can result in personal injury or death.
2. To protect against accident resulting from abrupt start of the machine, be sure to carry out the following operations after turning the power off. For the machine incorporating a clutch motor, in particular, be sure to carry out the following operations after turning the power off and verifying that the machine stops completely.
   2-1. For example, threading the parts such as the needle, looper, spreader etc. which have to be threaded, or changing the bobbin.
   2-2. For example, changing or adjusting all component parts of the machine.
   2-3. For example, when inspecting, repairing or cleaning the machine or leaving the machine.
3. Be sure to remove the power plug by holding the plug section instead of the cord section in order to prevent electrical-shock, earth-leakage or fire accident.
4. Be sure to turn the power off whenever the machine is left unattended between works.
5. Be sure to turn the power off in the case of power failure in order to prevent accident resulting of breakage of electrical components.

PRECAUTIONS TO BE TAKEN IN VARIOUS OPERATION STAGES

Transportation

1. Be sure to lift and move the machine in a safe manner taking the machine weight in consideration. Refer to the text of the engineer's manual for the mass of the machine.
2. Be sure to take sufficient safety measures to prevent falling or dropping before lifting or moving the machine in order to protect against accident that can result in personal injury or death.
3. Once the machine has been unpacked, never re-pack it for transportation to protect the machine against breakage resulting from unexpected accident or dropping.

Unpacking

1. Be sure to unpack the machine in the prescribed order in order to prevent accident that can result in personal injury or death. In the case the machine is crated, in particular, be sure to carefully check nails. The nails have to be removed.
2. Be sure to check the machine for the position of its center of gravity and take it out from the package carefully in order to prevent accident that can result in personal injury or death.

Installation

(I) Table and table stand

1. Be sure to use JUKI genuine table and table stand in order to prevent accident that can result in personal injury or death. If it is inevitable to use a table and table stand which are not JUKI genuine ones, select the table and table stand which are able to support the machine weight and reaction force during operation.
2. If casters are fitted to the table stand, be sure to use the casters with a locking mechanism and lock them to secure the machine during the operation, maintenance, inspection and repair in order to prevent accident that can result in personal injury or death.

(II) Cable and wiring

1. Be sure to prevent an extra force from being applied to the cable during the use in order to prevent electrical-shock, earth-leakage or fire accident. In addition, if it is necessary to cable near the operating section such as the V-belt, be sure to provide a space of 30 mm or more between the operating section and the cable.
2. Be sure to avoid starburst connection in order to prevent electrical-shock, earth-leakage or fire accident.
3. Be sure to securely connect the connectors in order to prevent electrical-shock, earth-leakage or fire accident. In addition, be sure to remove the connector while holding its connector section.

(III) Grounding

1. Be sure to have an electrical expert install an appropriate power plug in order to prevent accident caused by earth-leakage or dielectric strength voltage fault. In addition, be sure to connect the power plug to the grounded outlet without exceptions.
2. Be sure to ground the earth cable in order to prevent accident caused by earth leakage.

(IV) Motor

1. Be sure to use the specified rated motor (JUKI genuine product) in order to prevent accident caused by burnout.
2. If a commercially available clutch motor is used with the machine, be sure to select one with an entanglement preventive pulley cover in order to protect against being entangled by the V-belt.

Before operation

1. Be sure to make sure that the connectors and cables are free from damage, dropout and looseness before turning the power on in order to prevent accident resulting in personal injury or death.
2. Never put your hand into the moving sections of the machine in order to prevent accident that can result in personal injury or death.
   In addition, check to be sure that the direction of rotation of the pulley agrees with the arrow shown on pulley.
3. If the table stand with casters is used, be sure to secure the table stand by locking the casters or with adjusters, if provided, in order to protect against accident caused by abrupt start of the machine.

During operation

1. Be sure not to put your fingers, hair or clothing close to the moving sections such as the handwheel, hand pulley and motor or place something near those sections while the machine is in operation in order to prevent accident caused by entanglement that can result in personal injury or death.
2. Be sure not to place your fingers near the surround area of the needle or inside the thread take-up lever cover when turning the power on or while the machine is in operation in order to prevent accident that can result in personal injury or death.
3. The machine runs at a high speed. Never bring your hands near the moving sections such as looper, spreader, needle bar, hook and cloth trimming knife during operation in order to protect your hands against injury. In addition, be sure to turn the power off and check to be sure that the machine completely stops before changing the thread.
4. Be careful not to allow your fingers or any other parts of your body to be caught between the machine and table when removing the machine from or replacing it on the table in order to prevent accident that can result in personal injury or death.
5. Be sure to turn the power off and check to be sure that the machine and motor completely stop before removing the belt cover and V-belt in order to prevent accident caused by abrupt start of the machine or motor.
6. If a servomotor is used with the machine, the motor does not produce noise while the machine is at rest. Be sure not to forget to turn the power off in order to prevent accident caused by abrupt start of the motor.

7. **Never use the machine with the cooling opening of the motor power box shielded in order to prevent fire accident by overheat.**

Lubrication

1. **Be sure to use JUKI genuine oil and JUKI genuine grease to the parts to be lubricated.**
2. **If the oil adheres on your eye or body, be sure to immediately wash it off in order to prevent inflammation or irritation.**
3. **If the oil is swallowed unintentionally, be sure to immediately consult a medical doctor in order to prevent diarrhea or vomiting.**

Maintenance

1. **In prevention of accident caused by unfamiliarity with the machine, repair and adjustment has to be carried out by a service technician who is thoroughly familiar with the machine within the scope defined in the engineer's manual. Be sure to use JUKI genuine parts when replacing any of the machine parts. JUKI assumes no responsibility for any accident caused by improper repair or adjustment or the use of any part other than JUKI genuine one.**
2. **In prevention of accident caused by unfamiliarity with the machine or electrical-shock accident, be sure to ask an electrical technician of your company or JUKI or distributor in your area for repair and maintenance (including wiring) of electrical components.**
3. **When carrying out repair or maintenance of the machine which uses air-driven parts such as an air cylinder, be sure to remove the air supply pipe to expel air remaining in the machine beforehand, in order to prevent accident caused by abrupt start of the air-driven parts.**
4. **Be sure to check that screws and nuts are free from looseness after completion of repair, adjustment and part replacement.**
5. **Be sure to periodically clean up the machine during its duration of use. Be sure to turn the power off and verify that the machine and motor stop completely before cleaning the machine in order to prevent accident caused by abrupt start of the machine or motor.**
6. **Be sure to turn the power off and verify that the machine and motor stop completely before carrying out maintenance, inspection or repair of the machine. (For the machine with a clutch motor, the motor will keep running for a while by inertia even after turning the power off. So, be careful.)**
7. **If the machine cannot be normally operated after repair or adjustment, immediately stop operation and contact JUKI or the distributor in your area for repair in order to prevent accident that can result in personal injury or death.**
8. **If the fuse has blown, be sure to turn the power off and eliminate the cause of blowing of the fuse and replace the blown fuse with a new one in order to prevent accident that can result in personal injury or death.**
9. **Be sure to periodically clean up the air vent of the fan and inspect the area around the wiring in order to prevent fire accident of the motor.**
10. **In order to prevent accidents resulting in personal injury or death, adjustments have to be carried out within the instructions described in this Engineer's Manual and in the Instruction Manual by the personnel who have been well trained by the employer with respect to the latest knowledge and safety for the machine.**
11. **Make sure that water is contained in cylinders and pipes, then remove water from them in order to prevent accidents due to a malfunction of the machine.**

Operating environment

1. **Be sure to use the machine under the environment which is not affected by strong noise source (electromagnetic waves) such as a high-frequency welder in order to prevent accident caused by malfunction of the machine.**
2. **Never operate the machine in any place where the voltage fluctuates by more than "rated voltage ±10 %" in order to prevent accident caused by malfunction of the machine.**
3. **Be sure to verify that the air-driven device such as an air cylinder operates at the specified air pressure before using it in order to prevent accident caused by malfunction of the machine.**
4. **To use the machine with safety, be sure to use it under the environment which satisfies the following conditions:**
   Ambient temperature during operation 5°C to 35°C
   Relative humidity during operation 35 % to 85 %
5. **Dew condensation can occur if bringing the machine suddenly from a cold environment to a warm one. So, be sure to turn the power on after having waited for a sufficient period of time until there is no sign of water droplet in order to prevent accident caused by breakage or malfunction of the electrical components.**
6. **Be sure to stop operation when lightning flashes for the sake of safety and remove the power plug in order to prevent accident caused by breakage or malfunction of the electrical components.**
7. **Depending on the radio wave signal condition, the machine may generate noise in the TV or radio. If this occurs, use the TV or radio with kept well away from the machine.**
8. **In order to ensure the work environment, local laws and regulations in the country where the sewing machine is installed shall be followed.**
   In the case the noise control is necessary, an ear protector or other protective gear should be worn according to the applicable laws and regulations.
9. **Disposal of products and packages and treatment of used lubricating oil should be carried out properly according to the relevant laws of the country in which the sewing machine is used.**

PRECAUTIONS TO BE TAKEN IN VARIOUS OPERATION STAGES

Mechanical components

CAUTION

Transportation

1. **Be sure to lift this machine with four or more workers and use a carriage for moving it in order to prevent personal injury.**
2. **Be sure to take sufficient safety measures to prevent falling or dropping before lifting or moving the machine in order to protect against accident that can result in personal injury or death.**
3. **Installation is described in the Instruction Manual. Be sure to fully understand the description before putting the machine into operation.**

Replacement of parts

1. **In prevention of accident that can result in personal injury, be sure to carry out disassembly/assembly work within the specified range given in this Engineer's Manual and in the Instruction Manual.**
2. **Turn OFF the power before starting the work in order to protect against accident that can result in personal injury.**
   If it is inevitable to carry out work with the power ON, utmost care should be taken to prevent from depressing the foot pedal or pressing the start switch by mistake.
3. **Be sure to carry out replacement work after having installed the machine in a stable state in order to protect against accident that can result in personal injury.**
   In addition, be sure to select appropriate tools.
4. **In prevention of accident that can result in personal injury, make sure, after the completion of adjustment work, that neither screws nor nuts are loosened or come in contact with other parts.**
5. **Be sure to use JUKI genuine parts when replacing any of the machine parts.**
   JUKI assumes no responsibility for any accident caused by any part other than JUKI genuine one.
   In addition, in the event you cannot replace parts within the specified range, immediately stop the replacement work and ask JUKI or distributor in your area for replacement of the parts.

Adjustment

1. **Be sure to adjust according to the instructions given in this Engineer's Manual and in the Instruction Manual in order to protect against accident that can result in personal injury.**
2. **Be sure to carry out replacement work after having installed the machine in a stable state in order to protect against accident that can result in personal injury.**
   In addition, be sure to select appropriate tools.
3. **In prevention of accident that can result in personal injury, make sure, after the completion of adjustment work, that neither screws nor nuts are loosened or come in contact with other parts.**
4. **Turn OFF the power before starting the work in order to protect against accident that can result in personal injury.**
   If it is inevitable to carry out work with the power ON, utmost care should be taken to prevent from depressing the foot pedal or pressing the start switch by mistake.
5. **In prevention of accident that can result in personal injury or entanglement accident, be sure to ensure safety at the time of test run. In addition, be sure to take care not to allow hair or cloths to come in contact with the machine belt.**

Disassembly/assembly

1. **In prevention of accident that can result in personal injury, be sure to carry out disassembly/assembly work within the specified range given in this Engineer's Manual and in the Instruction Manual.**
2. **Be sure to carry out replacement work after having installed the machine in a stable state in order to protect against accident that can result in personal injury.**
   In addition, be sure to select appropriate tools.
3. **In prevention of accident that can result in personal injury, make sure, after the completion of adjustment work, that neither screws nor nuts are loosened or come in contact with other parts.**
4. **In prevention of accident that can result in personal injury, be sure to tighten screws and nuts in assembly work with a specified torque, if specified, or with an appropriate torque, if not specified.**
   After the completion of assembly work, be sure to check that screws and nuts are not loosened before starting test run.
5. **In prevention of accident that can result in personal injury, be sure to check whether the direction of rotation is correct at the time of test run.**
6. **In prevention of accident that can result in personal injury or entanglement accident, be sure to ensure safety at the time of test run. In addition, be sure to take care not to allow hair or cloths to come in contact with the machine belt.**

PRECAUTIONS TO BE TAKEN IN VARIOUS OPERATION STAGES

Electrical components

CAUTION

Transportation

1. **Be sure to lift this machine with four or more workers and use a carriage for moving it in order to prevent personal injury.**
2. **Be sure to take sufficient safety measures to prevent falling or dropping before lifting or moving the machine in order to protect against accident that can result in personal injury or death.**
3. **Installation is described in the Instruction Manual. Be sure to fully understand the description before putting the machine into operation.**

Replacement of parts

1. **In prevention of accident caused by unfamiliarity with the machine or electrical-shock accident, be sure to ask an electrical technician of your company or JUKI or distributor in your area for replacement of electrical components.**
2. **When it is necessary to open the control box containing electrical parts, be sure to turn the power off and wait for five minutes or more before opening the cover in order to prevent accident caused by unfamiliarity with the machine or electrical-shock accident. In addition, do not carry out replacement work with wet hands in order to prevent electrical-shock accident.**
3. **Be sure to replace parts according to the instructions given in this Engineer's Manual and in the Instruction Manual in order to protect against accident that can result in personal injury.**
4. **Be sure to carry out replacement work after having installed the machine in a stable state in order to protect against accident that can result in personal injury.**
   In addition, be sure to select appropriate tools.
5. **Make sure, after the completion of replacement work, that there is no loose soldering, no contact with other parts, inadequate contact between connectors and receptacles, and loose screws/nuts in order to protect against accident that can result in personal injury.**
6. **Make sure, after the completion of replacement work, that neither connectors nor cables are damaged, slipped off or loosened in order to protect against accident that can result in personal injury.**
   It should be remembered that some parts have been factory-insulated with tubes or tapes, or floated above the PWB for safety's sake. In addition, internal wiring has been factory-routed or -clamped in such a way that it does not come close to high-voltage parts. Be sure to re-place those parts as they are at the time of delivery.
7. **Be sure to use JUKI genuine parts when replacing any of the machine parts.**
   JUKI assumes no responsibility for any accident caused by any part other than JUKI genuine one.
   In addition, in the event you cannot replace parts within the specified range, immediately stop the replacement work and ask JUKI or distributor in your area for replacement of the parts.
8. **If the fuse has blown, be sure to turn the power off and eliminate the cause of blowing of the fuse and replace the blown fuse with a new one in order to prevent accident that can result in personal injury or death.**

Adjustment

1. **In prevention of accident caused by unfamiliarity with the machine or electrical-shock accident, be sure to ask an electrical technician of your company or JUKI or distributor in your area for adjustment of electrical components.**
2. **When it is necessary to open the control box containing electrical parts, be sure to turn the power off and wait for five minutes or more before opening the cover in order to prevent accident caused by unfamiliarity with the machine or electrical-shock accident. In addition, do not carry out adjustment work with wet hands in order to prevent electrical-shock accident.**
3. **In prevention of accident that can result in personal injury, adjust adjustment variable resistor or the like installed on PWB within the specified range given in this Engineer's Manual and in the Instruction Manual.**
4. **Be sure to carry out replacement work after having installed the machine in a stable state in order to protect against accident that can result in personal injury.**
   In addition, be sure to select appropriate tools.
5. **In prevention of accident that can result in personal injury, make sure, after the completion of adjustment work, that neither screws nor nuts are loosened or come in contact with other parts.**
6. **Make sure, after the completion of replacement work, that neither connectors nor cables are damaged, slipped off or loosened in order to protect against accident that can result in personal injury.**
7. **In prevention of accident that can result in personal injury or entanglement accident, be sure to ensure safety at the time of test run. In addition, be sure to take care not to allow hair or cloths to come in contact with the machine belt.**

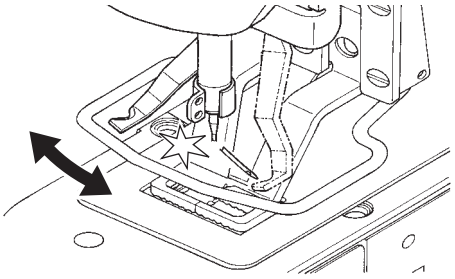
Disassembly/assembly

1. **In prevention of accident that can result in personal injury, be sure to carry out disassembly/assembly work within the specified range given in this Engineer's Manual and in the Instruction Manual.**

2. **In prevention of accident caused by unfamiliarity with the machine or electrical-shock accident, be sure to ask an electrical technician of your company or JUKI or distributor in your area for disassembly/assembly of electrical components.**
3. **When it is necessary to open the control box containing electrical parts, be sure to turn the power off and wait for five minutes or more before opening the cover in order to prevent accident caused by unfamiliarity with the machine or electrical-shock accident. In addition, do not carry out disassembly/assembly work with wet hands in order to prevent electrical-shock accident.**
4. **Be sure to carry out replacement work after having installed the machine in a stable state in order to protect against accident that can result in personal injury.**
   In addition, be sure to select appropriate tools.
5. **In prevention of accident that can result in personal injury, be sure to tighten screws and nuts in assembly work with a specified torque, if specified, or with an appropriate torque, if not specified.**
   After the completion of assembly work, be sure to check that screws and nuts are not loosened before starting test run.
6. **In prevention of accident that can result in personal injury, make sure, after the completion of adjustment work, that neither screws nor nuts are loosened or come in contact with other parts.**
7. **Make sure, after the completion of replacement work, that neither connectors nor cables are damaged, slipped off or loosened in order to protect against accident that can result in personal injury.**
   It should be remembered that some parts have been factory-insulated with tubes or tapes, or floated above the PWB for safety's sake. In addition, internal wiring has been factory-routed or -clamped in such a way that it does not come close to high-voltage parts. Be sure to re-place those parts as they are at the time of delivery.
8. **In prevention of accident that can result in personal injury, be sure to check whether the direction of rotation is correct at the time of test run.**
9. **In prevention of accident that can result in personal injury or entanglement accident, be sure to ensure safety at the time of test run. In addition, be sure to take care not to allow hair or cloths to come in contact with the machine belt.**

Cautions for safe use of LK-1900B series, LK-1900BN series and LK-1900S series

1. To avoid electrical shock hazards, neither open the cover of the electrical box for the motor nor touch the components mounted inside the electrical box.
2. After changing the pattern, make sure the needle entry point. If the pattern is protruded from the work clamp feet, the needle will interfere with the work clamp feet during sewing, and it is dangerous due to the needle breakage or the like.
3. Do not turn OFF the power in a state that the needle is lowered. Wiper may break the needle.



1. In case nothing is displayed in the operation panel even when the power switch is turned ON, turn OFF the power switch and check the power voltage and phase.
2. To prevent personal injury or death, never put fingers into the thread take-up lever, work clamp, work clamp mechanism and thread take-up cover, and under or near the cloth cutting knife and needle when turning on the power switch or while the machine is in operation.
3. To protect against possible accidents due to abrupt startup of the machine, turn OFF the power switch before tilting the machine head or removing the motor cover.
4. So as to prevent possible accidents caused by abrupt start of the sewing machine, depress the start switch after ascertaining that there is no interfering thing under the needle when winding the bobbin thread. In addition, never put your hair close to the machine during thread trimming.
5. Feeding frame automatically comes down when pattern is changed, ready key is ON, Presser switch is ON, intermediate presser button is ON and bobbin winder button is ON. To prevent possible accidents caused by abrupt start of the sewing machine, never place your fingers under the feeding frame.
6. To avoid personal injury, never bring your fingers, hair or clothing close to V belt, cloth cutting knife or motor during operation, and never place anything on any of these parts.
7. To avoid personal injury, never operate the machine with the motor cover, eye protection cover, or any other safety devices removed.
8. To prevent personal injury or death, do not operate the sewing machine with its covers removed.
9. The operation panel displays safety warnings. It is necessary therefore to first verify normal display on the panel when the power switch is turned on, before operating the sewing machine.
10. To prevent personal injury or death, do not press the hand pulley while the sewing machine is in operation.
11. To avoid personal injury, be careful never to allow your fingers to go inside the machine when tilting or raising the machine head.
12. To prevent possible accidents due to electric shocks or damaged electrical component(s), always turn OFF the power switch before connecting or disconnecting the power plug.

13. **During thunder and lightning storms, stop your work and disconnect the power from the outlet to ensure safety and prevent possible accidents due to damaged electrical component(s).**
14. **If the machine is suddenly moved from a cold place to a warm place, dew condensation may result. If this occurs, be sure to confirm that there are no potentially dangerous water drops in the machine before turning it on in order to prevent possible accidents due to damaged electrical component(s).**
15. **In the event of a power failure, be sure to turn OFF the power to the machine to protect against damaged electrical components.**
16. **This sewing machine should be used under industrial environment. Under general household environment, the machine may cause poor reception when used in proximity of the television set or radio.**
17. **When the sewing machine is used without a break for many hours, the temperature of a part of the machine body or the rear side of operation panel rises higher by 15˚C than the environmental temperature, and you may feel the heat from the part. However, this phenomenon is not abnormal, and does not affect the components or the like.**
18. **Do not lubricate the machine oil to the places other than the oil tank and the hook section. The grease lubricating system except the hook section is employed for this sewing machine, and the grease flows out when lubricating the machine oil resulting in worn-out of the components.**
19. **Be careful of handling this product so as not to pour water or oil, shock by dropping, and the like since this product is a precision instrument.**
20. **This is a Class A product. In a domestic environment this product may cause radio interference, in which case the user may be required to make corrective actions.**
21. **In order to prevent possible accidents due to a ground fault, the earth cable should be properly grounded.**
22. **Use a dedicated control box to the LK-1900B series and the LK-1900BN series when connecting a control box to the LK-1900B series and the LK-1900BN series.**

SAFETY DEVICES AND WARNING LABELS (LK-1900B)

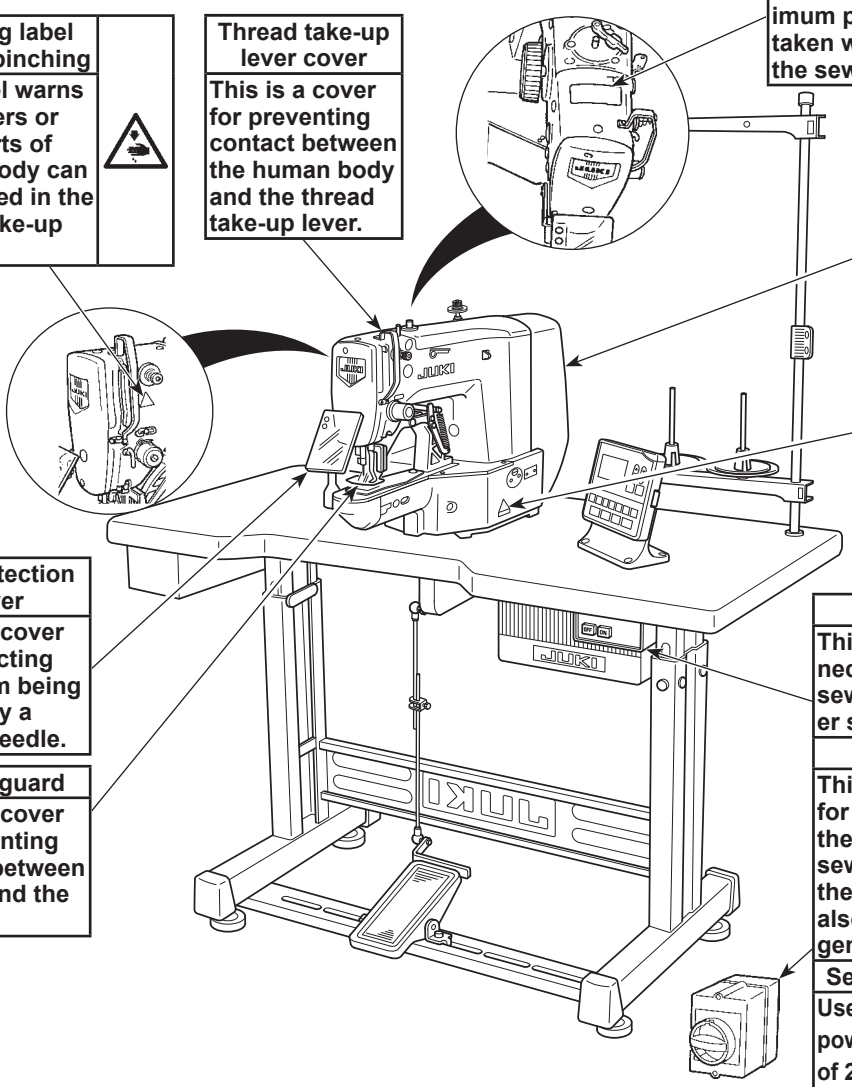
Warning label
The label gives the minimum precautions to be taken when operating the sewing machine.
(Refer to the warning label on page i.)

Warning label against pinching
This label warns that fingers or other parts of human body can be pinched in the thread take-up lever.

Thread take-up lever cover
This is a cover for preventing contact between the human body and the thread take-up lever.

Motor cover
This is a cover for preventing contact between the human body and the motor.

Warning label against pinching
This label warns that hands can be pinched under the sewing machine.



Eye protection cover
This is a cover for protecting eyes from being injured by a broken needle.

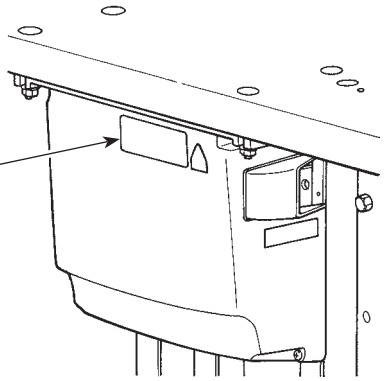
Finger guard
This is a cover for preventing contact between fingers and the needle.

Power switch
This is a switch for disconnecting the power unit of the sewing machine from the power supply.

Power switch (EU type)
This switch is used for disconnecting the power unit of the sewing machine from the power supply. It is also used as the emergency stop switch.

Selection of the power switch
Use the IEC60204-1-compliant power switch with rated current of 20 A or more and short-circuit breaking capacity of 120 A or more, which has the operating section in red against the yellow background.

Electrical-shock danger label
In order to protect against electrical shock, safety precautions to be taken to avoid danger are written on this label.
(EU type)
(Refer to "Electrical-shock danger label" on page i.)



CAUTION

In addition, be aware that the safety devices such as the "eye protection cover" and "finger guard" are sometimes omitted in the sketches, illustrations and figures included in the Engineer's Manual for the explanation's sake. In the practical use, never remove those safety devices.

CONTENTS

1. Specifications

No.	Item \ Model name	Application	
		LK-1900SS	LK-1903SS
1	Application	Bar-tacking	Lock stitch button sewing
2	Sewing area	X-Direction (right, left) 40 mm; Y-Direction (forward, backward) 30 mm	————
3	Button size	————	Type : Round-shaped, flat button (four holes, two holes) Size : ø8 to 32 mm Standard : (ø8 to 20 mm)
4	Max. sewing speed	2,700 sti/min max.	
5	Stitch length	0.1 mm to 10.0 mm (Adjustable in 0.1 mm step)	
6	Feed motion of work clamp foot	Intermittent feed (2-shaft drive by stepping motor)	
7	Needle bar stroke	41.2 mm	45.7 mm
8	Needle	DP×5 #14	DP×17 #14
9	Work clamp lifting system	Stepping motor	
10	Lifting (lift) amount of work-clamp foot	Standard 13 mm, Max. 17 mm (At the time of needle up by reverse run function)	Max. 13 mm
11	Number of standard patterns	51 patterns	50 patterns
12	Data communication	USB	
13	Wiper system	Interlockly with work clamp foot lifter by stepping motor	
14	Needle thread tension	Spring-type thread tension (disk rise solenoid drive)	
15	Hook	Standard semi-rotary hook	
16	Lubrication	Hook : Minute-quantity lubrication	
17	Lubricating oil	JUKI NEW Defrix oil No.2 (equivalent to ISO VG32) (Lubrication system)	
18	Grease	1. Penetration No. 2 lithium grease, 2. Templex N3, 3. JUKI Grease A **(Note) 1.**	
19	Memory medium	Memory of MAIN board (80 Kbyte)	
20	Number of stitches that can be stored in memory	Max. 20,000 stitches	
21	Enlarging/Reducing facility	X-Direction, Y-Direction: 20 to 200% each (1% step)	
22	Enlarging/Reducing method	Pattern enlargement/reduction can be done by increasing/decreasing the stitch length	
23	Sewing speed limitation	400 to 2,700 sti/min (100 sti/min step)	
24	Material clawing amount	————	
25	Pattern selector facility	Standard pattern : 51, User pattern : 1 to 200, Media pattern : 1 to 999	
26	Bobbin thread counter	Up/Down method (0 to 9999)	
27	Sewing machine motor	AC servo motor (Direct-drive system)	
28	External dimensions	W: 1,200 mm, L: 660 mm, H: 1,100 mm (Standard table stand applied)	
29	Weight	Machine head : 42 kg, Control box : 5.1 kg	
30	Control box	MC-673	
31	Power consumption	250VA (Pattern No.1, 2,700 sti/min, Pause : 2 seconds)	
32	Working temperature range	5°C to 35°C	
33	Working humidity range	35% to 85% (No dew condensation permissible)	
34	Power-supply voltage	3-phase 200V , Rated voltage ±10% , 50/60Hz	
35	Noise	- Equivalent continuous emission sound pressure level (L_{pA}) at the workstation : A-weighted value of 84.0 dB ; (Includes ; K_{pA} = 2.5 dB) ; according to ISO 10821- C.6.3 -ISO 11204 GR2 at 2,700 sti/min.	

* Maximum sewing speed should be reduced according to the sewing conditions.

(Note) 1. Grease type, refer to "7-(1) Greasing parts".

No.	Item \ Model name	Application			
		LK-1900B	LK-1901B	LK-1902B	LK-1903B
1	Application	Bar-tacking	Eyelet buttonhole bar-tacking	Belt-loop attaching	Lock stitch button sewing **(Note) 1.**
2	Sewing area	X-Direction (right, left) 40 mm; Y-Direction (forward, backward) 30 mm			————
3	Button size	————			Type: Round-shaped, flat button Size: ø8 to ø32 mm, Standard (ø8 to ø20 mm)
4	Max. sewing speed	* 3,200 sti/min max. (*2,700 sti/min for the 2-fold semi-rotary hook)	* 3,000 sti/min max. (When sewing pitches are less than 5 mm in X-direction and 3.5 mm in Y-direction)		* 2,700 sti/min max.
5	Stitch length	0.1 mm to 10.0 mm (Adjustable in 0.1 mm step)			
6	Feed motion of work clamp foot	Intermittent feed (2-shaft drive by stepping motor)			
7	Needle bar stroke	41.2 mm			45.7 mm
8	Needle	DP×5 #14, #16			DP×17 #14
		DP×5 #11 (F, M) (DP×17 #21 heavy-weight material)		(DP×17 #21 heavy-weight material)	
9	Work clamp lifting system	Stepping motor			
10	Lifting (lift) amount of work-clamp foot	Standard 14 mm, Max. 17 mm (At the time of needle up by reverse run function)			Max. 13 mm
11	Number of standard patterns	51 patterns	3 patterns	6 patterns	50 patterns
12	Data communication	USB			
13	Wiper system	Interlockly with work clamp foot lifter by stepping motor			
14	Needle thread clamp device	Standard : General 0			Standard : Disable 1 **(Note) 1.**
15	Needle thread tension	Active tension (Electronic thread tension control mechanism)			
16	Hook	Standard semi-rotary hook (2-fold semi-rotary hook)	Standard semi-rotary hook		
17	Lubrication	Hook : Minute-quantity lubrication			
18	Lubricating oil	JUKI NEW Defrix oil No.2 (equivalent to ISO VG32) (Lubrication system)			
19	Grease	1. Penetration No. 2 lithium grease, 2. Templex N3, 3. JUKI Grease A **(Note) 2.**			
20	Memory medium	Memory of MAIN board (80 Kbyte)			
21	Number of stitches that can be stored in memory	Max. 20,000 stitches			
22	Enlarging/Reducing facility	X-Direction, Y-Direction: 20 to 200% each (1% step)			
23	Enlarging/Reducing method	Pattern enlargement/reduction can be done by increasing/decreasing the stitch length			
24	Sewing speed limitation	400 to 3,200 sti/min (100 sti/min step) (2,700 sti/min max. for the 2-fold semi-rotary hook)	400 to 3,000 sti/min (100 sti/min step)		400 to 2,700 sti/min (100 sti/min step)
25	Material clawing amount	————	Max. 3 mm	————	————
26	Pattern selector facility	Standard pattern : 51, User pattern : 1 to 200, Media pattern : 1 to 999			
27	Bobbin thread counter	Up/Down method (0 to 9999)			
28	Sewing machine motor	AC servo motor (Direct-drive system)			
29	External dimensions	W: 1,200 mm, L: 660 mm, H: 1,100 mm (Standard table stand applied)			
30	Control box	MC-672 (MC-670)			
31	Weight	Machine head : 42 kg, Control box : 5.1 kg			
32	Power consumption	250VA (Pattern No.1, 3,200 sti/min, Pause : 2 seconds)			
33	Working temperature range	5°C to 35°C			
34	Working humidity range	35% to 85% (No dew condensation permissible)			
35	Power-supply voltage	3-phase 200V , Rated voltage ±10% , 50/60Hz			
36	Noise	- Equivalent continuous emission sound pressure level (L_{pA}) at the workstation : A-weighted value of 82 dB; (Includes K_{pA} = 2.5 dB); according to ISO 10821- C.6.3 -ISO 11204 GR2 at 3,200 sti/min for the sewing cycle, 1.0s ON (Pattern : No.1). - Sound power level (L_{WA}) ; A-weighted value of 89 dB; (Includes K_{WA} = 2.5 dB); according to ISO 10821- C.6.3 -ISO 3744 GR2 at 3,200 sti/min for the sewing cycle, 1.0s ON (Pattern : No.1).			

* Maximum sewing speed should be reduced according to the sewing conditions.

(Note) 1. LK-1903B is set to needle thread clamp prohibited (no motion) with memory switch U035 at the time of standard delivery.

2. Grease type, refer to "7.-(1) Greasing parts".

No.	Item \ Model name	Application	
		LK-1900BB (with bird's nest preventing and shorter thread remaining type thread trimmer)	LK-1903BB (with bird's nest preventing and shorter thread remaining type thread trimmer)
1	Application	Bar-tacking	Lock stitch button sewing
2	Sewing area	X-Direction (right, left) 40 mm; Y-Direction (forward, backward) 30 mm	————
3	Button size	————	Type : Round-shaped, flat button (four holes, two holes) Size : ø8 to 20 mm
4	Max. sewing speed	* 3,200 sti/min max.	* 2,700 sti/min max.
5	Stitch length	0.1 mm to 10.0 mm (Adjustable in 0.1 mm step)	
6	Feed motion of work clamp foot	Intermittent feed (2-shaft drive by stepping motor)	
7	Needle bar stroke	41.2 mm	45.7 mm
8	Needle	DP×17 #14 (S) DP×17 #11 (F)	DP×17 #11, 14
9	Work clamp lifting system	Stepping motor	
10	Lifting (lift) amount of work-clamp foot	Standard 11 mm, Max. 14 mm (At the time of needle up by reverse run function)	Max. 10 mm
11	Number of standard patterns	50 patterns	34 patterns
12	Data communication	USB	
13	Wiper system	Interlockly with work clamp foot lifter by stepping motor	
14	Needle thread clamp device	Standard : General 0 **(Note) 3.**	
15	Needle thread tension	Active tension (Electronic thread tension control mechanism)	
16	Hook	Standard semi-rotary hook	
17	Lubrication	Hook : Minute-quantity lubrication	
18	Lubricating oil	JUKI NEW Defrix oil No.2 (equivalent to ISO VG32) (Lubrication system)	
19	Grease	1. Penetration No. 2 lithium grease, 2. Templex N3, 3. JUKI Grease A **(Note) 2.**	
20	Memory medium	Memory of MAIN board (80 Kbyte)	
21	Number of stitches that can be stored in memory	Max. 20,000 stitches	
22	Enlarging/Reducing facility	X-Direction, Y-Direction: 20 to 200% each (1% step)	
23	Enlarging/Reducing method	Pattern enlargement/reduction can be done by increasing/decreasing the stitch length	
24	Sewing speed limitation	400 to 3,200 sti/min (100 sti/min step)	400 to 2,700 sti/min (100 sti/min step)
25	Material clawing amount	————	————
26	Pattern selector facility	Standard pattern : 50/34, User pattern : 1 to 200, Media pattern : 1 to 999	
27	Bobbin thread counter	Up/Down method (0 to 9999)	
28	Sewing machine motor	AC servo motor (Direct-drive system)	
29	External dimensions	W: 1,200 mm, L: 660 mm, H: 1,100 mm (Standard table stand applied)	
30	Control box	MC-672	
31	Weight	Machine head : 42 kg, Control box : 5.1 kg	
32	Power consumption	250VA (Pattern No.1, 3,200 sti/min, Pause : 2 seconds)	
33	Working temperature range	5°C to 35°C	
34	Working humidity range	35% to 85% (No dew condensation permissible)	
35	Power-supply voltage	3-phase 200V , Rated voltage ±10% , 50/60Hz	
36	Noise	- Equivalent continuous emission sound pressure level (L_{pA}) at the workstation : A-weighted value of 82 dB; (Includes K_{pA} = 2.5 dB); according to ISO 10821- C.6.3 -ISO 11204 GR2 at 3,200 sti/min for the sewing cycle, 1.0s ON (Pattern : No.1). - Sound power level (L_{WA}) ; A-weighted value of 89 dB; (Includes K_{WA} = 2.5 dB); according to ISO 10821- C.6.3 -ISO 3744 GR2 at 3,200 sti/min for the sewing cycle, 1.0s ON (Pattern : No.1).	

* Maximum sewing speed should be reduced according to the sewing conditions.

(Note) 2. Grease type, refer to "7.-(1) Greasing parts".

3. For the LK-1900BB and 1903BB, the memory switch U035 is enabled at the time of standard delivery. When this function is disabled, the needle thread which begins sewing becomes long and the effect of a bird's nest preventing is lost.

No.	Item \ Model name	Application			
		LK-1900BN (NFC Application)	LK-1901BN (NFC Application)	LK-1902BN (NFC Application)	LK-1903BN (NFC Application)
1	Application	Bar-tacking	Eyelet buttonhole bar-tacking	Belt-loop attaching	Lock stitch button sewing **(Note) 4.**
2	Sewing area	X-Direction (right, left) 40 mm; Y-Direction (forward, backward) 30 mm			————
3	Button size	————			Type: Round-shaped, flat button Size: ø8 to ø32 mm, Standard (ø8 to ø20 mm)
4	Max. sewing speed	* 3,200 sti/min max. (*2,700 sti/min for the 2-fold semi-rotary hook)	* 3,000 sti/min max. (When sewing pitches are less than 5 mm in X-direction and 3.5 mm in Y-direction)		* 2,700 sti/min max.
5	Stitch length	0.1 mm to 10.0 mm (Adjustable in 0.1 mm step)			
6	Feed motion of work clamp foot	Intermittent feed (2-shaft drive by stepping motor)			
7	Needle bar stroke	41.2 mm			45.7 mm
8	Needle	DP×5 #14, #16			DP×17 #14
		DP×5 #11 (F, M) (DP×17 #21 heavy-weight material)		(DP×17 #21 heavy-weight material)	
9	Work clamp lifting system	Stepping motor			
10	Lifting (lift) amount of work-clamp foot	Standard 14 mm, Max. 17 mm (At the time of needle up by reverse run function)			Max. 13 mm
11	Number of standard patterns	51 patterns	3 patterns	6 patterns	50 patterns
12	Data communication	USB, LAN, NFC			
13	Wiper system	Interlockly with work clamp foot lifter by stepping motor			
14	Needle thread clamp device	Standard : General 0			Standard : Disable 1 **(Note) 4.**
15	Needle thread tension	Active tension (Electronic thread tension control mechanism)			
16	Hook	Standard semi-rotary hook (2-fold semi-rotary hook)	Standard semi-rotary hook		
17	Lubrication	Hook : Minute-quantity lubrication			
18	Lubricating oil	JUKI NEW Defrix oil No.2 (equivalent to ISO VG32) (Lubrication system)			
19	Grease	1. Penetration No. 2 lithium grease, 2. Templex N3, 3. JUKI Grease A **(Note) 2.**			
20	Memory medium	Memory of MAIN board (80 Kbyte)			
21	Number of stitches that can be stored in memory	Max. 20,000 stitches			
22	Enlarging/Reducing facility	X-Direction, Y-Direction: 20 to 200% each (1% step)			
23	Enlarging/Reducing method	Pattern enlargement/reduction can be done by increasing/decreasing the stitch length			
24	Sewing speed limitation	400 to 3,200 sti/min (100 sti/min step) (2,700 sti/min max. for the 2-fold semi-rotary hook)	400 to 3,000 sti/min (100 sti/min step)		400 to 2,700 sti/min (100 sti/min step)
25	Material clawing amount	————	Max. 3 mm	————	————
26	Pattern selector facility	Standard pattern : 51, User pattern : 1 to 200, Media pattern : 1 to 999			
27	Bobbin thread counter	Up/Down method (0 to 9999)			
28	Sewing machine motor	AC servo motor (Direct-drive system)			
29	External dimensions	W: 1,200 mm, L: 660 mm, H: 1,100 mm (Standard table stand applied)			
30	Control box	MC-672N			
31	Weight	Machine head : 42 kg, Control box : 5.1 kg			
32	Power consumption	250VA (Pattern No.1, 3,200 sti/min, Pause : 2 seconds)			
33	Working temperature range	5°C to 35°C			
34	Working humidity range	35% to 85% (No dew condensation permissible)			
35	Power-supply voltage	3-phase 200V , Rated voltage ±10% , 50/60Hz			
36	Noise	- Equivalent continuous emission sound pressure level (L_{pA}) at the workstation : A-weighted value of 82 dB; (Includes K_{pA} = 2.5 dB); according to ISO 10821- C.6.3 -ISO 11204 GR2 at 3,200 sti/min for the sewing cycle, 1.0s ON (Pattern : No.1). - Sound power level (L_{WA}) ; A-weighted value of 89 dB; (Includes K_{WA} = 2.5 dB); according to ISO 10821- C.6.3 -ISO 3744 GR2 at 3,200 sti/min for the sewing cycle, 1.0s ON (Pattern : No.1).			

* Maximum sewing speed should be reduced according to the sewing conditions.

(Note) 2. Grease type, refer to "7.-(1) Greasing parts".

4. LK-1903NB is set to needle thread clamp prohibited (no motion) with memory switch U035 at the time of standard delivery.

No.	Item \ Model name	Application	
		LK-1900BNB (Bird's nest prevention, Short tail, NFC Application)	LK-1903BNB (Bird's nest prevention, Short tail, NFC Application)
1	Application	Bar-tacking	Lock stitch button sewing
2	Sewing area	X-Direction (right, left) 40 mm; Y-Direction (forward, backward) 30 mm	————
3	Button size	————	Type : Round-shaped, flat button (four holes, two holes) Size : ø8 to 20 mm
4	Max. sewing speed	* 3,200 sti/min max.	* 2,700 sti/min max.
5	Stitch length	0.1 mm to 10.0 mm (Adjustable in 0.1 mm step)	
6	Feed motion of work clamp foot	Intermittent feed (2-shaft drive by stepping motor)	
7	Needle bar stroke	41.2 mm	45.7 mm
8	Needle	DP×17 #14 (S) DP×17 #11 (F)	DP×17 #11, 14
9	Work clamp lifting system	Stepping motor	
10	Lifting (lift) amount of work-clamp foot	Standard 11 mm, Max. 14 mm (At the time of needle up by reverse run function)	Max. 10 mm
11	Number of standard patterns	50 patterns	34 patterns
12	Data communication	USB, LAN, NFC	
13	Wiper system	Interlockly with work clamp foot lifter by stepping motor	
14	Needle thread clamp device	Standard : General 0 **(Note) 5.**	
15	Needle thread tension	Active tension (Electronic thread tension control mechanism)	
16	Hook	Standard semi-rotary hook	
17	Lubrication	Hook : Minute-quantity lubrication	
18	Lubricating oil	JUKI NEW Defrix oil No.2 (equivalent to ISO VG32) (Lubrication system)	
19	Grease	1. Penetration No. 2 lithium grease, 2. Templex N3, 3. JUKI Grease A **(Note) 2.**	
20	Memory medium	Memory of MAIN board (80 Kbyte)	
21	Number of stitches that can be stored in memory	Max. 20,000 stitches	
22	Enlarging/Reducing facility	X-Direction, Y-Direction: 20 to 200% each (1% step)	
23	Enlarging/Reducing method	Pattern enlargement/reduction can be done by increasing/decreasing the stitch length	
24	Sewing speed limitation	400 to 3,200 sti/min (100 sti/min step)	400 to 2,700 sti/min (100 sti/min step)
25	Material clawing amount	————	————
26	Pattern selector facility	Standard pattern : 50/34, User pattern : 1 to 200, Media pattern : 1 to 999	
27	Bobbin thread counter	Up/Down method (0 to 9999)	
28	Sewing machine motor	AC servo motor (Direct-drive system)	
29	External dimensions	W: 1,200 mm, L: 660 mm, H: 1,100 mm (Standard table stand applied)	
30	Control box	MC-672N	
31	Weight	Machine head : 42 kg, Control box : 5.1 kg	
32	Power consumption	250VA (Pattern No.1, 3,200 sti/min, Pause : 2 seconds)	
33	Working temperature range	5°C to 35°C	
34	Working humidity range	35% to 85% (No dew condensation permissible)	
35	Power-supply voltage	3-phase 200V , Rated voltage ±10% , 50/60Hz	
36	Noise	- Equivalent continuous emission sound pressure level (L_{pA}) at the workstation : A-weighted value of 82 dB; (Includes K_{pA} = 2.5 dB); according to ISO 10821- C.6.3 -ISO 11204 GR2 at 3,200 sti/min for the sewing cycle, 1.0s ON (Pattern : No.1). - Sound power level (L_{WA}) ; A-weighted value of 89 dB; (Includes K_{WA} = 2.5 dB); according to ISO 10821- C.6.3 -ISO 3744 GR2 at 3,200 sti/min for the sewing cycle, 1.0s ON (Pattern : No.1).	

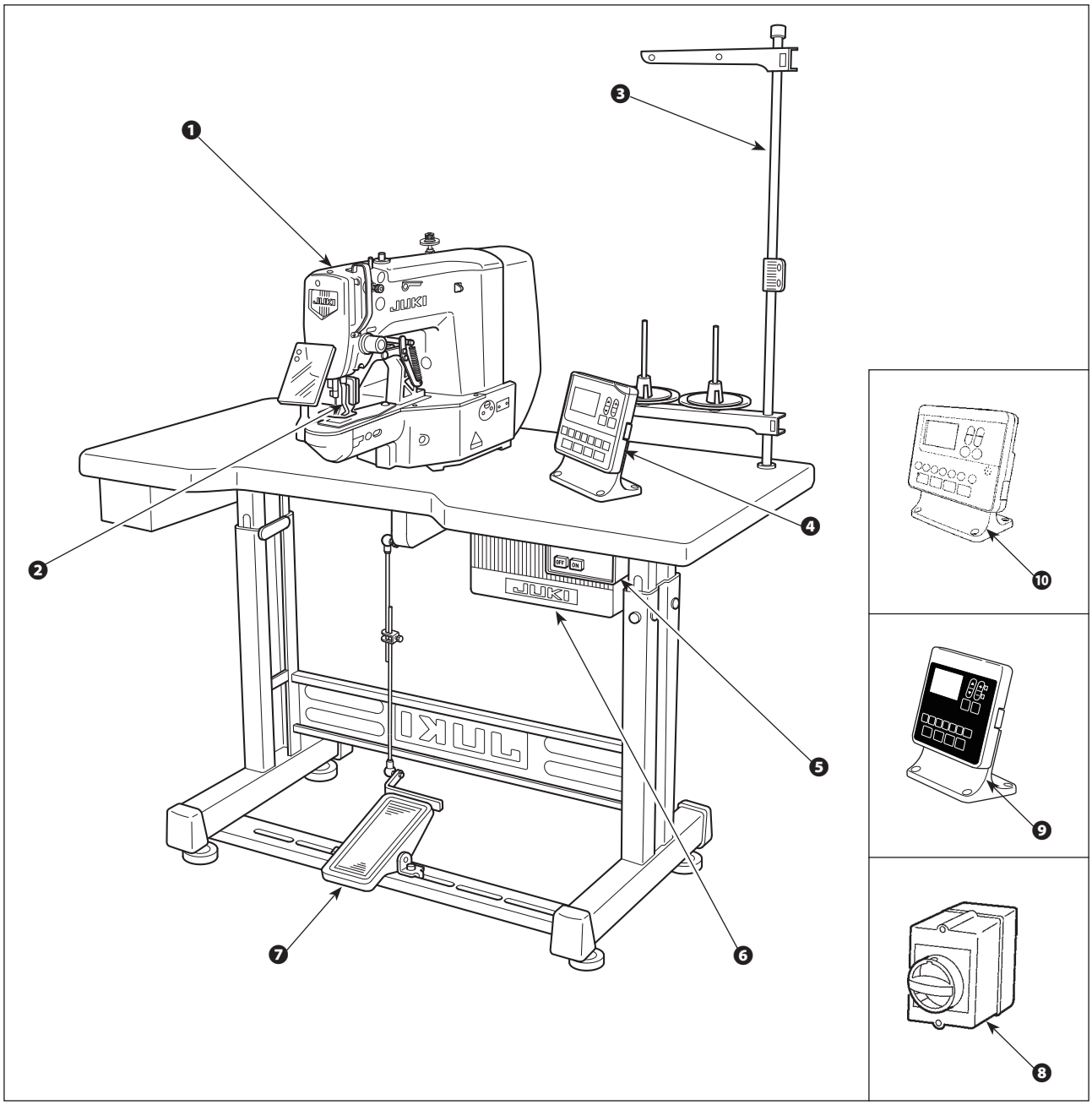
* Maximum sewing speed should be reduced according to the sewing conditions.

(Note) 2. Grease type, refer to "7.-(1) Greasing parts".

5. For the LK-1900BB and 1903BB, memory switch U035 is enabled at the time of standard delivery. When this function is disabled, the needle thread which begins sewing becomes long and the effect of a bird's nest preventing is lost.

2. Configuration

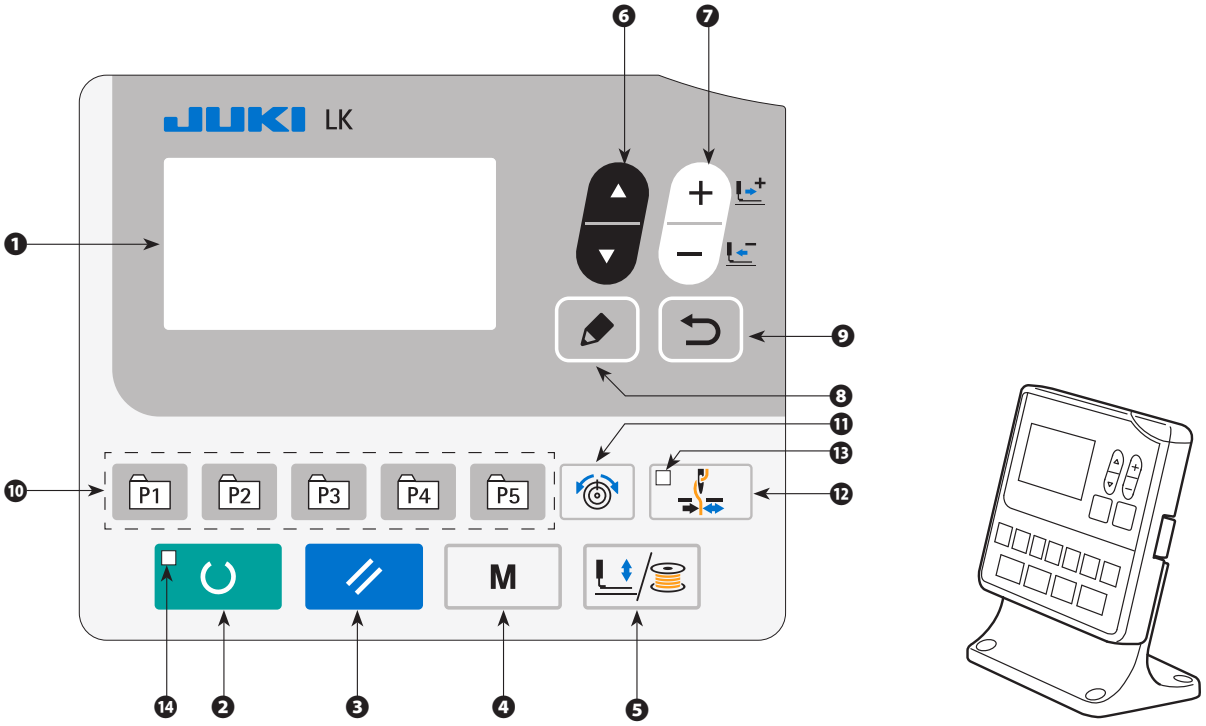
(1) Names of main unit



❶ Sewing machine head
❷ Work clamp foot
❸ Thread stand
❹ Operation panel
❺ Power switch
❻ Control box
❼ Pedal switch
❽ Power switch (EU Type)
❾ Operation panel (NFC Type)
❿ Operation panel (Simple Type)

(2) Names and explanation of switches on the operation panel

2-1 Standard Application



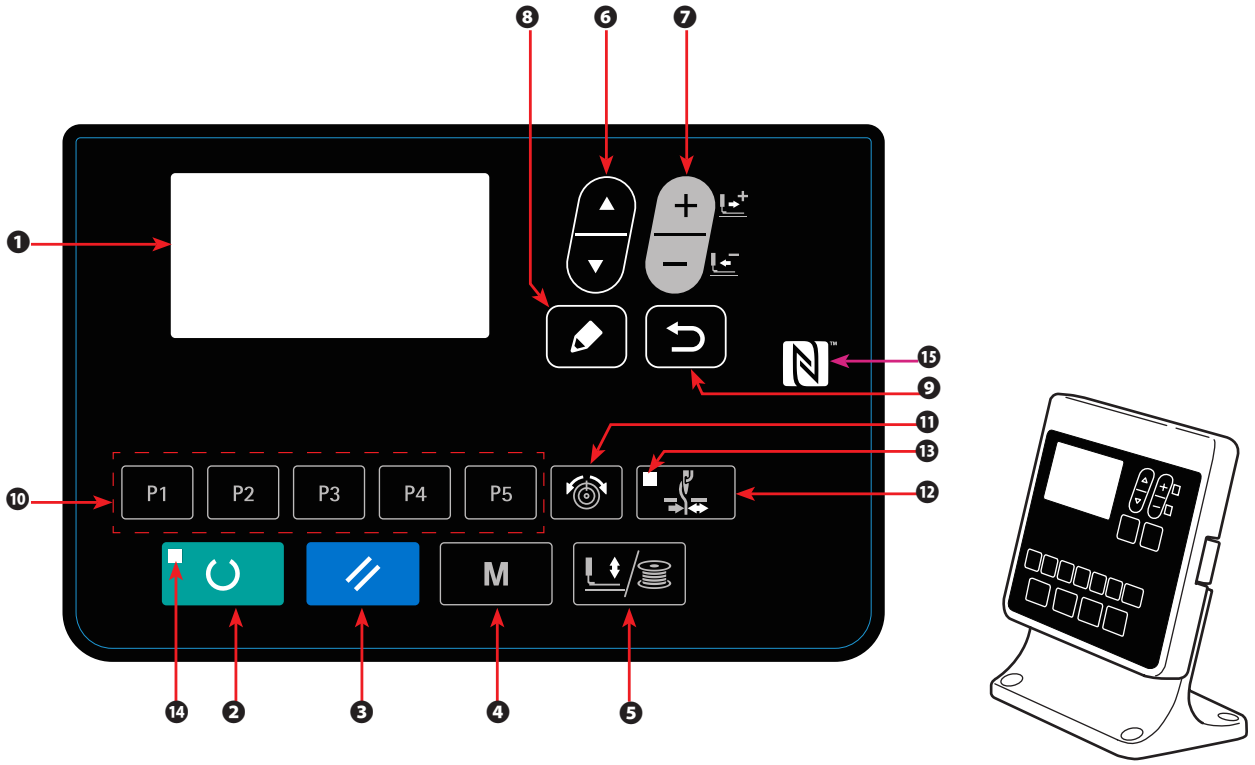
No.	NAME	FUNCTION
❶	LCD display	Various data such as pattern No., shape, etc. are displayed.
❷	READY key	Press this key when starting sewing. Every time this key is pressed, change-over of sewing ready set state and data set state can be performed.
❸	RESET key	Press this key when releasing error, traveling the feed mechanism to its initial position, counter resetting, etc.
❹	MODE key M	This key is used for displaying the mode screen.
❺	PRESSER and WINDER key	This key lifts or lowers the presser. When the presser goes up, the needle bar travels to the origin and when it comes down, the needle bar travels to the right. This key is pressed when performing bobbin winding.
❻	ITEM SELECT key	This key is used to select the data No. and other kinds of data.
❼	DATA CHANGE key	This key is used to change the pattern No. and other kinds of data. This key is used to move the feed forward on a stitch-by-stitch basis.

No.	NAME	FUNCTION
❽	EDIT key	This key is used to display the edit screen, to select the item or to display the detail screen.
❾	RETURN key	This key is used to return the screen to the previous one.
❿	DIRECT PATTERN P1 P2 P3 P4 P5	This key registers the pattern. When this key is pressed, the pattern registered here can sew immediately. X/Y scale, sewing position, etc. can be changed and registered.
⓫	THREAD TENSION key	The thread tension screen is displayed.
⓬	THREAD CLAMP key	This key selects enable/disable of needle thread clamp. When it is enabled, needle thread clamp display LED lights up. **(Note) 1.**
⓭	THREAD CLAMP LED	When this LED lights up, needle thread clamp operates.
⓮	SET READY LED	The LED lights up under the sewing mode.

(Note) 1. LK-1903B is set to needle thread clamp prohibited (no motion) with memory switch U035 at the time of standard delivery.

2. For the LK-1900BB and 1903BB, memory switch U035 is enabled at the time of standard delivery. However, thread clamp switch is disabled. Also, it is not possible to set enable/disable of the thread clamp switch.

2-2 NFC Application

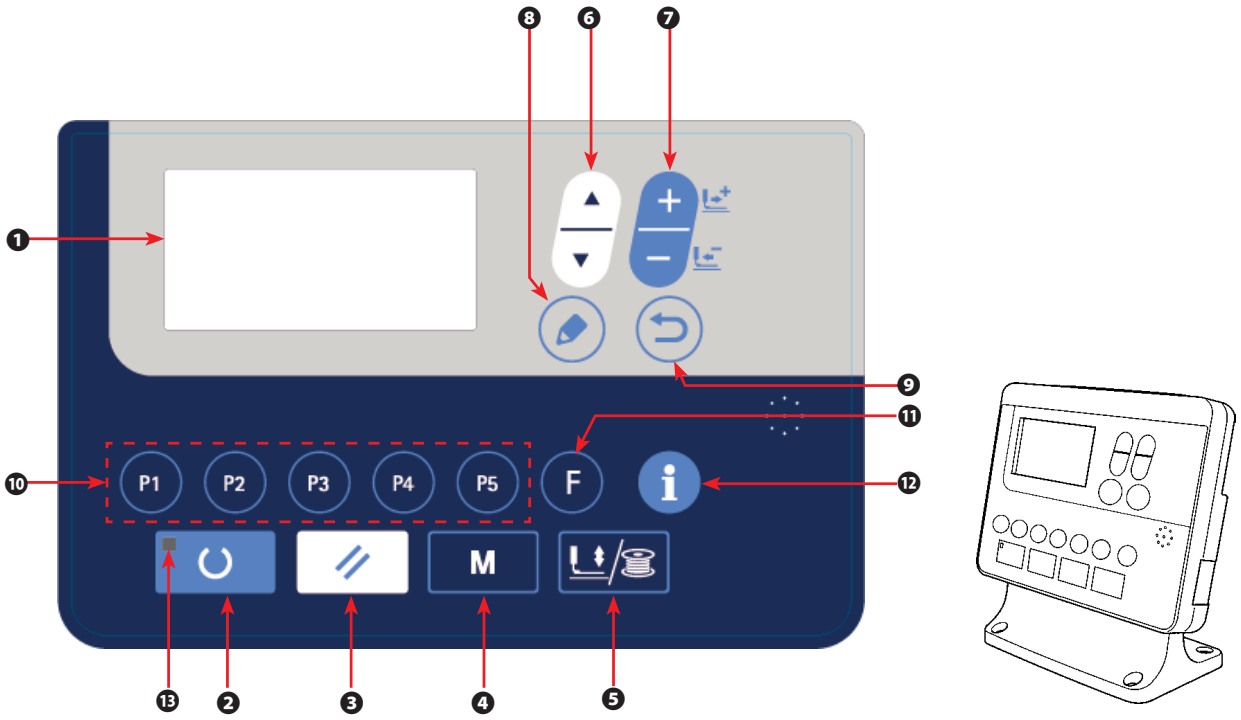


No.	NAME	FUNCTION
❶	LCD display	Various data such as pattern No., shape, etc. are displayed.
❷	READY key	Press this key when starting sewing. Every time this key is pressed, change-over of sewing ready set state and data set state can be performed.
❸	RESET key	Press this key when releasing error, traveling the feed mechanism to its initial position, counter resetting, etc.
❹	MODE key	This key is used for displaying the mode screen.
❺	PRESSER and WINDER key	This key lifts or lowers the presser. When the presser goes up, the needle bar travels to the origin and when it comes down, the needle bar travels to the right. This key is pressed when performing bobbin winding.
❻	ITEM SELECT key	This key is used to select the data No. and other kinds of data.
❼	DATA CHANGE key	This key is used to change the pattern No. and other kinds of data. This key is used to move the feed forward on a stitch-by-stitch basis.

No.	NAME	FUNCTION
❽	EDIT key	This key is used to display the edit screen, to select the item or to display the detail screen.
❾	RETURN key	This key is used to return the screen to the previous one.
❿	DIRECT PATTERN	This key registers the pattern. When this key is pressed, the pattern registered here can sew immediately. X/Y scale, sewing position, etc. can be changed and registered.
⓫	THREAD TENSION key	The thread tension screen is displayed.
⓬	THREAD CLAMP key	This key selects enable/disable of needle thread clamp. When it is enabled, needle thread clamp display LED lights up. **(Note) 1.**
⓭	THREAD CLAMP LED	When this LED lights up, needle thread clamp operates.
⓮	SET READY LED	The LED lights up under the sewing mode.
⓯	NFC MARK	To communicate, bring a tablet or smart phone closer to the mark.

(Note) 1. LK-1901BN is set to needle thread clamp prohibited (no motion) with memory switch U035 at the time of standard delivery.
2. For the LK-1901BBNS, the thread clamp key is disabled.

2-3 Simple Application



No.	NAME	FUNCTION
❶	LCD display	Various data such as pattern No., shape, etc. are displayed.
❷	READY key	Press this key when starting sewing. Every time this key is pressed, change-over of sewing ready set state and data set state can be performed.
❸	RESET key	Press this key when releasing error, traveling the feed mechanism to its initial position, counter resetting, etc.
❹	MODE key	This key is used for displaying the mode screen.
❺	PRESSER and WINDER key	This key lifts or lowers the presser. When the presser goes up, the needle bar travels to the origin and when it comes down, the needle bar travels to the right. This key is pressed when performing bobbin winding.
❻	ITEM SELECT key	This key is used to select the data No. and other kinds of data.
❼	DATA CHANGE key	This key is used to change the pattern No. and other kinds of data. This key is used to move the feed forward on a stitch-by-stitch basis.

No.	NAME	FUNCTION
❽	EDIT key	This key is used to display the edit screen, to select the item or to display the detail screen.
❾	RETURN key	This key is used to return the screen to the previous one.
❿	DIRECT PATTERN P1 P2 P3 P4 P5	This key registers the pattern. When this key is pressed, the pattern registered here can sew immediately. X/Y scale, sewing position, etc. can be changed and registered.
⓫	THREAD TENSION key (F key)	This is the shortcut key to which a parameter can be registered.
⓬	NFORMATION key	This key used to carryout setting and checking of the production counter and the production support function.
⓭	SET READY LED	The LED lights up under the sewing mode.

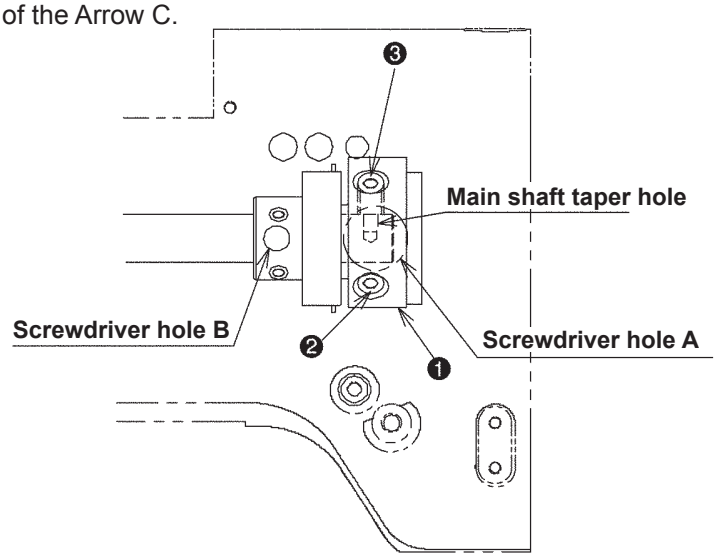
3. Standard adjustment value

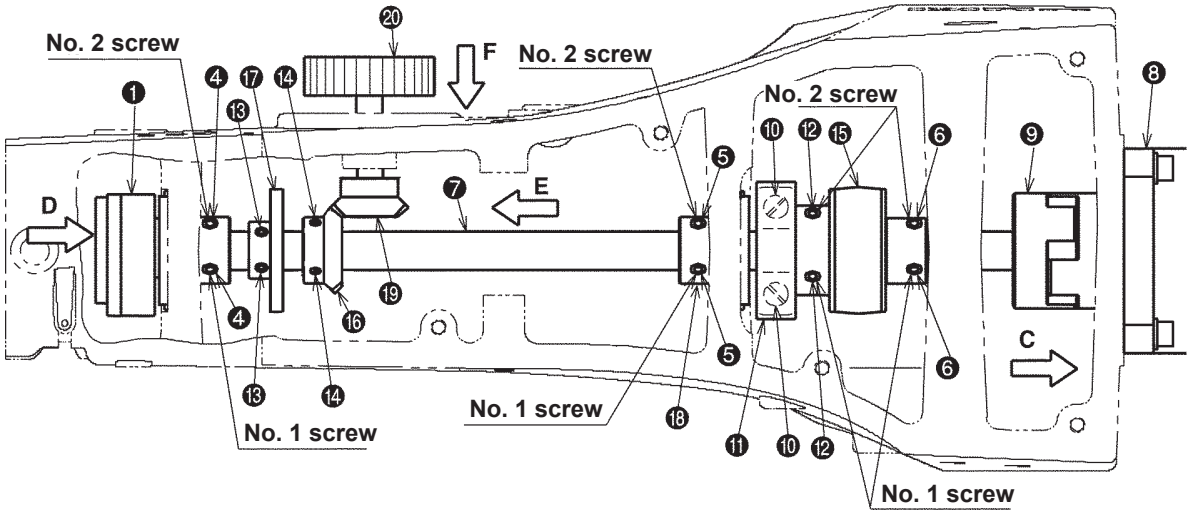
(1) Main shaft connection/disconnection

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

Procedures of disassembling

1. Loosen the setscrew ❷ of the main shaft counterbalance ❶ through the screwdriver hole A, then remove the taper screw ❸ .
2. Loosen the 2 setscrews ❹ (through the screwdriver hole B), and also the 2 each of ❺ and ❻ .
   At that time, loosen the second setscrew first. The first setscrew should be removed completely from the flat part of the main shaft ❼ .
3. Remove the main shaft motor ❽ .
   Refer to "3.-(3) Removal of the main shaft motor and coupling."
4. Loosen the 2 setscrews ❿ .
   Pay attention to possible injury at that time because the balancer ⓫ begins to turn when the setscrew ❿ is loosened.
5. Loosen the 2 setscrews ⓬ .
   At that time, the first setscrew of the setscrew ⓬ should be removed completely from the flat part of the main shaft ❼ .
6. Loosen the 2 setscrews ⓭ and the 2 setscrews ⓮ .
7. Draw out the main shaft ❼ in the direction of the Arrow C.





Procedures of assembling

1. Insert the crank rod ⓯ , balancer ⓫ , hand pulley gear A ⓰ , bobbin winder driver wheel ⓱ , and the main shaft counterbalance ❶ in the main shaft ❼ in this order, and mount the assembly on the frame.
2. Insert the taper screw ❸ in the taper hole of the main shaft, and tighten it. Then, tighten the setscrew ❷ to fix the main shaft counterbalance ❶ .
3. Lightly press the main shaft counterbalance ❶ in the direction of the arrow D and also the middle metal ⓲ in the direction of the arrow E. Then, tighten the 2 setscrews ❺ .
   (Tighten the first screw so that it touches flatly on the main shaft ❼ . Then, tighten the second one. Same procedures followed hereafter.)
4. Tighten the 2 each setscrews ❹ and ❻ , respectively.
   (Make sure that the first screw touches flatly on the main shaft ❼ .)
5. Push the hand pulley ⓴ in the direction of the arrow F so that the hand pulley gear A ⓰ is meshed with that the hand pulley gear B ⓳ . In this state, fix the pulley with the 2 setscrews ⓮ .
6. Mount the main shaft motor ❽ and the coupling ❾ .
   Refer to "3.-(2) Removal of the main shaft motor and coupling".
7. Fix the crank rod ⓯ with the 2 setscrews ⓬ .
   Refer to "3.-(3) Crank connecting rod connection/disconnection".
8. Fix the balancer ⓫ with the 2 setscrews ⓬ .
   Refer to "3.-(4) Crank balancer positioning".
9. Fix the bobbin winder driver wheel ⓱ with the 2 setscrews ⓭ .
   Refer to "3.-(30) Adjustment of the bobbin winder driving wheel position".

* Try to turn the main shaft ❼ and confirm that there is no torque.

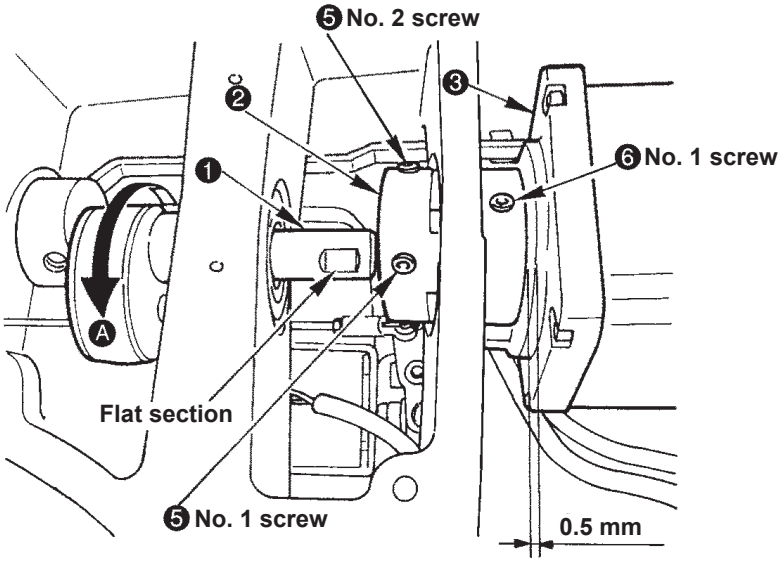
(2) Removal of the main shaft motor and coupling

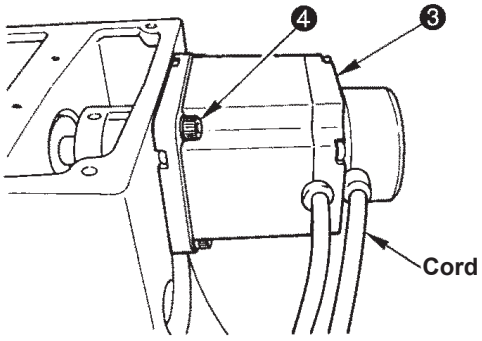
WARNING :
Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.

Procedures of disassembling

1. Removal of the main shaft motor together with coupling
   Loosen the 2 setscrews ❺ on the main shaft side of the coupling ❷ . Then, remove the 4 motor set-screws ❹ .
2. To remove the coupling ❷ from the main shaft motor ❸ , loosen the 2 setscrews ❻ on the main shaft side.

(Note) Turn the main shaft ❶ in the direction of forward rotation Ⓐ. The screw (hole) that can be seen first is the No. 1 screw. Loosen the screws, starting with the No. 2 screw. Tightening should be done, starting with the No. 1 screw.





Procedures of assembling

1. Mounting of the main shaft motor together with the coupling
   1) Tighten the 4 motor setscrews ❹ . Then, tighten the 2 setscrews ❺ on the main shaft side of the coupling ❷ .
   2) The cords of the main shaft motor ❸ should be positioned in the lateral direction.
2. Incorporation of the coupling in the main shaft motor
   1) Provide a clearance of 0.5 mm between the coupling ❷ and the main shaft motor ❸ .
   2) Apply the No. 1 screw ❺ of the coupling ❷ to the shaft flat section of the main shaft motor ❸ , and fix it.
3. Meshing of the coupling
   1) Apply the setscrew ❻ (No. 1 screw) of the main shaft motor side to the section between the 2 set-screws ❺ of the main shaft, and get them meshed.

(3) Crank connecting rod connection/disconnection

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

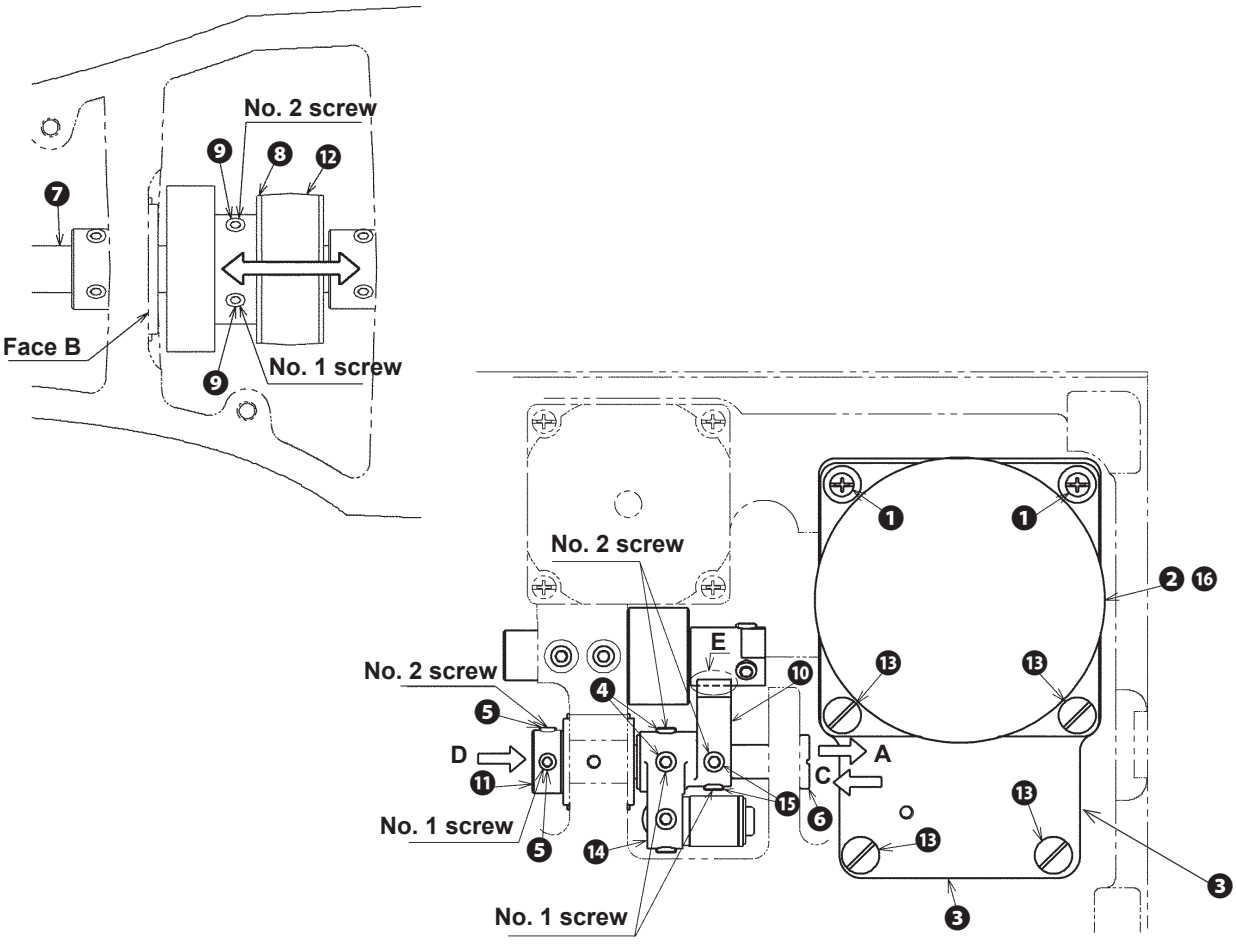
Procedures of disassembling

(LK-1900B Series, LK-1900BN Series)

1. Remove the 2 setscrews ❶ and 4 setscrews ⓭ . Then take out the Y feed motor ❷ and the crosswise feed motor mounting plate ❸ .
2. Loosen the 2 setscrews ❹ , 2 setscrews ⓯ and the 2 setscrews ❺ . At that time, the second screws should be loosened first for the setscrews ❹ , ❺ and ⓯ . The first screws of the setscrews ❹ , ❺ and ⓯ should be arranged so that they can come completely off the flat section of the oscillator shaft ❻ .
3. Pull out the oscillator shaft ❻ in the direction of the arrow A.
4. Remove the main shaft ❼ according to "3.-(1) Main shaft connection/disconnection." Then, take out the crank rod unit ⓬ .

(LK-1900S Series)

1. Remove 2 setscrews ❶ and 4 setscrews ⓭ . Then, remove the Y feed motor ❷ , the crosswise feed motor mounting plate ❸ , and motor spacer ⓰ (only LK-1900SS).
2. Loosen the 2 setscrews ❹ , 2 setscrews ⓯ and the 2 setscrews ❺ . At that time, the second screws should be loosened first for the setscrews ❹ , ❺ and ⓯ . The first screws of the setscrews ❹ , ❺ and ⓯ should be arranged so that they can come completely off the flat section of the oscillator shaft ❻ .
3. Pull out the oscillator shaft ❻ in the direction of the arrow A.
4. Remove the main shaft ❼ according to "3.-(1) Main shaft connection/disconnection." Then, take out the crank rod unit ⓬ .



Procedures of assembling

1. Mount the main shaft ❼ according to "3.-(1) Main shaft connection/disconnection." Assemble the crank rod unit ⓬ .
2. Mount the frame while the oscillator ⓾ and the oscillator arm ⓮ is passed through the oscillator shaft ❻ .
3. Pass the thrust collar ⓫ through the oscillator shaft ❻ . Lightly push the oscillator shaft ❻ in the direction of the arrow C and the thrust collar ⓫ in the direction of the arrow D. Tighten the 2 setscrews ❺ . (Make sure that the first screw touches flatly on the oscillator shaft ❻ .)
4. Fix the oscillator ⓾ and the oscillator arm ⓮ according to "3.-(6) Oscillator gear positioning".
5. Lightly swing the crank rod unit ⓬ with a finger in the direction of the arrow. Decide the positioning of the crank rod unit ⓬ so that it stays in the center of swinging.
   Tighten the 2 setscrews ❾ and then fix them so that the crank rod unit ⓬ is not displaced from the center of swinging.
   (Tighten the first screw first so that it comes in contact flatly with the main shaft ❼ . Then, tighten the second one.)

6-1. LK-1900B Series, LK-1900BN Series :
   Mount the Y feed motor ❷ and the crosswise feed motor mounting plate ❸ , using the 2 setscrews ❶ and 4 setscrews ⓭ .
   Refer to "3.-(27) Adjustment of the position of the X feed motor and the Y feed motor (Adjustment of the backlash of the driving gear)".

6-2. LK-1900S Series :
   Mount the Y feed motor ❷ and the crosswise feed motor mounting plate ❸ , and motor spacer ⓰ using 2 setscrews ❶ and 4 setscrews ⓭ .
   Refer to "3.-(27) Adjustment of the position of the X feed motor and the Y feed motor (Adjustment of the backlash of the driving gear)".

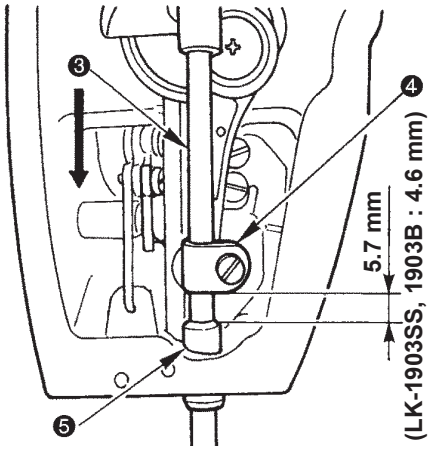
(Note) 1. Try to turn the main shaft ❼ and confirm that there is no torque.
2. In the case of connection/disconnection or positioning of the crank rod unit ⓬ or positioning of the oscillator ⓾ , grease-up treatment is always needed for the specified places (2 positions) and the gear area E of the oscillator ⓾ .
3. Actions for the crank rod unit ⓬ (under-cam ❽) positioning must be taken without fail, after doing "3.-(6) Oscillator gear positioning".
Inadequate positioning of the under-cam ❽ and the oscillator ⓾ can cause of the frictional wear or lock-up.

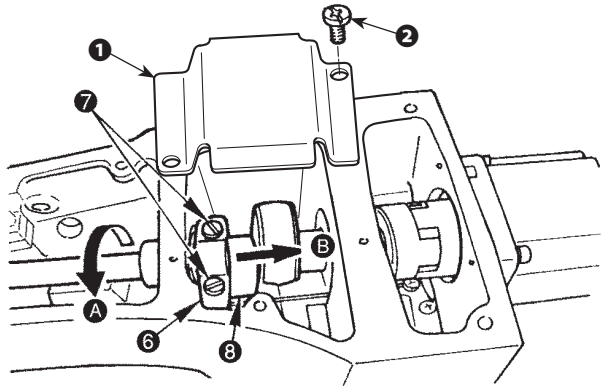
(4) Crank balancer positioning

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

Standard adjustment

[Rotating direction]
When the needle bar ❸ lowers and the clearance between the needle bar connecting ❹ and the needle bar bushing, lower ❺ is 5.7 mm (LK-1903SS, 1903B, 1903BN : 4.6 mm), the 2 setscrews ❼ of the crank balancer ❻ assume the horizontal condition.
[Axial direction]
Keep the close contact with the main shaft eccentric cam ❽ and the crank balancer ❻ .



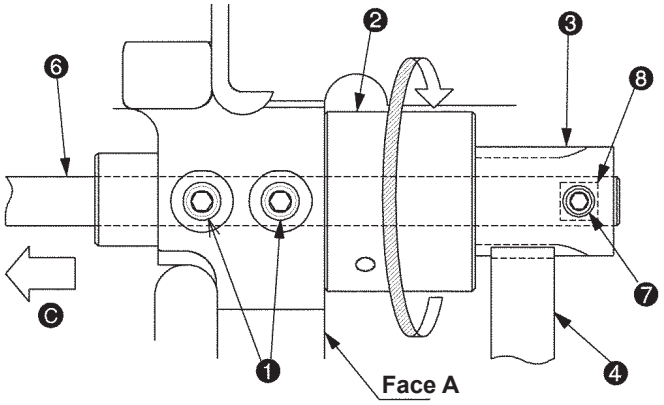


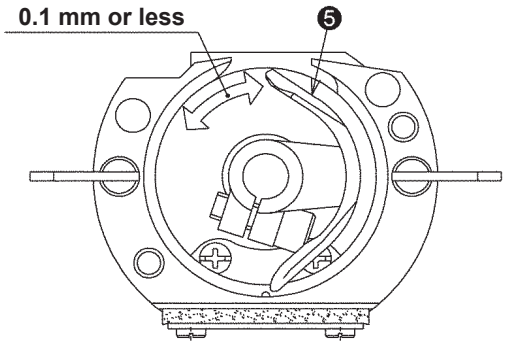
(5) Lower shaft backlash adjustment and connection/disconnection

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

Standard adjustment

1. Size of lower shaft backlash is 0.1 mm at the tip of the driver ❺ . The shaft is required to rotate smoothly.
2. Define the stop position of the lower shaft ❻ so that the setscrew ❼ settles almost in the center of the flat section ❽ of the lower shaft ❻ .





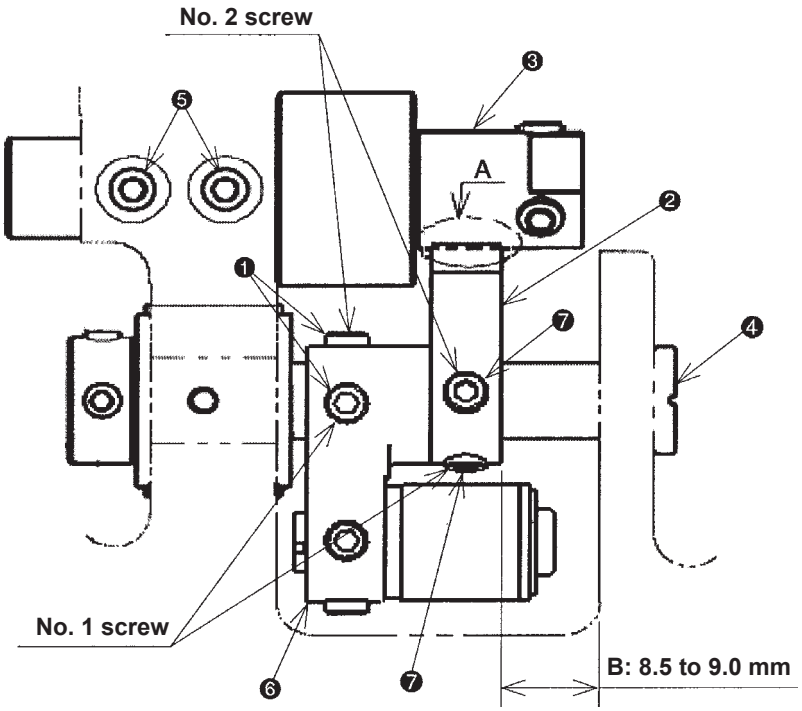
Adjustment procedures	Results of Improper adjustment
If the main shaft eccentric cam ❽ is not fixed, this adjustment should be carried out after defining its position and fixing it. 1. Loosen the 2 setscrews ❼ of the crank balancer ❻ . 2. Using the 2 setscrews ❷ , remove the crank rod cover ❶ . 3. Turn the main shaft in the direction of forward rotation Ⓐ so that the needle bar ❸ lowers and the clearance between the needle bar connecting ❹ and the needle bar bushing, lower ❺ is 5.7 mm (LK-1903SS, 1903B, 1903BN : 4.6 mm). 4. In the state that the 2 setscrews ❼ of the crank balancer ❻ assume the horizontal condition and they are moved in the direction of the arrow mark Ⓑ, keep the close contact with the main shaft eccentric cam ❽ and tighten the 2 setscrews ❼ . When tightening these 2 setscrews ❼ , the screws should be tightened reciprocally.	o If the angle for fixing the crank balancer ❻ is inadequate, vibration of sewing machine operation will be intensified. o If the sewing machine is used for a long time while the fixing position is inadequate, the operational life of the main shaft bearing may be shortened. o If the crank balancer ❻ is not moved in the direction of the arrow mark Ⓑ, there may be interference with the sewing machine frame.

Adjustment procedures	Results of Improper adjustment
1. Lower shaft backlash 1) Loosen the 2 setscrews ❶ . 2) Turn the lower shaft rear metal ❷ in the direction of the arrow and adjust the backlash, keeping the metal to contact closely with Face A. Size of backlash is 0.1 mm at the tip of the driver ❺ . The shaft is required to rotate smoothly. 3) Tighten the 2 setscrews ❶ . **(Note) When eliminate the backlash, the direction of rotation should always be kept in the direction of the arrow.** 2. Lower shaft connection/disconnection 1) Loosen the 2 setscrews ❼ . 2) The lower shaft ❻ can be taken out if it is pulled in the direction Ⓒ of the arrow. 3) When mounting the lower shaft ❻ , insert it in the lower shaft rear metal ❷ and the lower shaft gear ❸ . Apply 1 of the setscrews ❼ to the flat section ❽ of the lower shaft ❻ and tighten it approximately in the center. Tighten the remaining setscrew ❼ . * Connection and disconnection of the lower shaft ❻ become easy if the above-mentioned backlash has been relieved in advance. In this case, backlash adjustment must be done after the lower shaft ❻ has been installed.	o If the backlash is excessive, the hook noise will be increased. o If backlash is too small, the lower shaft gear ❸ or the oscillator ❹ will give rise to frictional wear. In addition, this can be a cause of crank rod lock-up. o If the front or rear position of the lower shaft rear metal ❷ is displaced at the time of backlash adjustment, this can also be a cause of the lock-up of oscillator ❹ or the crank rod.

(6) Oscillator gear positioning

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

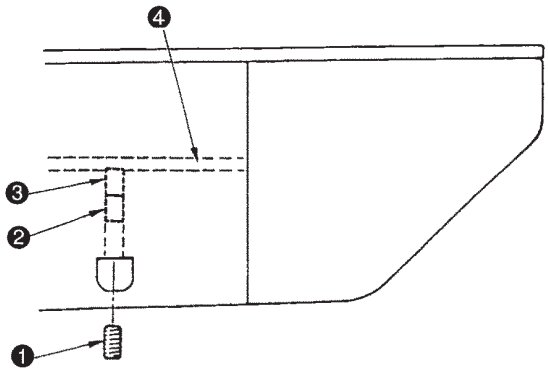
Standard adjustment



(7) Adjustment of hook oil amount

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

Standard adjustment



Adjustment procedures	Results of Improper adjustment
1. Loosen the 2 setscrews ❺ and increase the backlash of the lower shaft gear ❸ . **(Note) If the lower shaft gear ❸ has insufficient backlash, the oscillator ❷ does not swing correctly. In such a case, refer to "3.-(5) Lower shaft backlash adjustment and connection/disconnection" and provide a sufficient backlash.** 2. The 2 setscrews ❶ and the 2 setscrews ❼ should have been loosened in advance. In this case, the second screw of the setscrews ❶ and ❼ should be loosened first. Then, the first one can be loosened. 3. Adjust the clearance to 8.5 to 9.0 mm between the oscillator ❷ and the frame, and decide the positioning of the oscillator ❷ . 4. Tighten the 2 setscrews ❼ and then fix them so that the oscillator ❷ is not displaced. (Tighten the first screw first so that it comes in contact flatly with the oscillator shaft ❹ . Then, tighten the second one.) 5. Tighten the 2 setscrews ❶ and fix the oscillator arm ❻ . (Tighten the first screw first so that it comes in contact flatly with the oscillator shaft ❹ . Then, tighten the second one.) 6. Refer to "3.-(3) Crank connecting rod connection/disconnection" and decide the positioning of the crank rod. 7. Make backlash adjustment for the lower shaft gear ❸ , according to "3.-(5) Lower shaft backlash adjustment and connection/disconnection". **(Note) 1. In the case of disassembly and adjustment, grease up treatment is always needed for the specified places (2 positions) and the gear area A of the oscillator ❷ .** **2. When the crank rod (under-cam) is removed, actions for oscillator gear positioning must be taken, without fail.** **Refer to "3.-(3) Crank connecting rod connection/disconnection".**	o If the position for fixing the oscillator ❷ is inadequate, this can also be a cause of the frictional wear or lock-up of the oscillator pin, crank rod lid, under cam, and the crank rod.

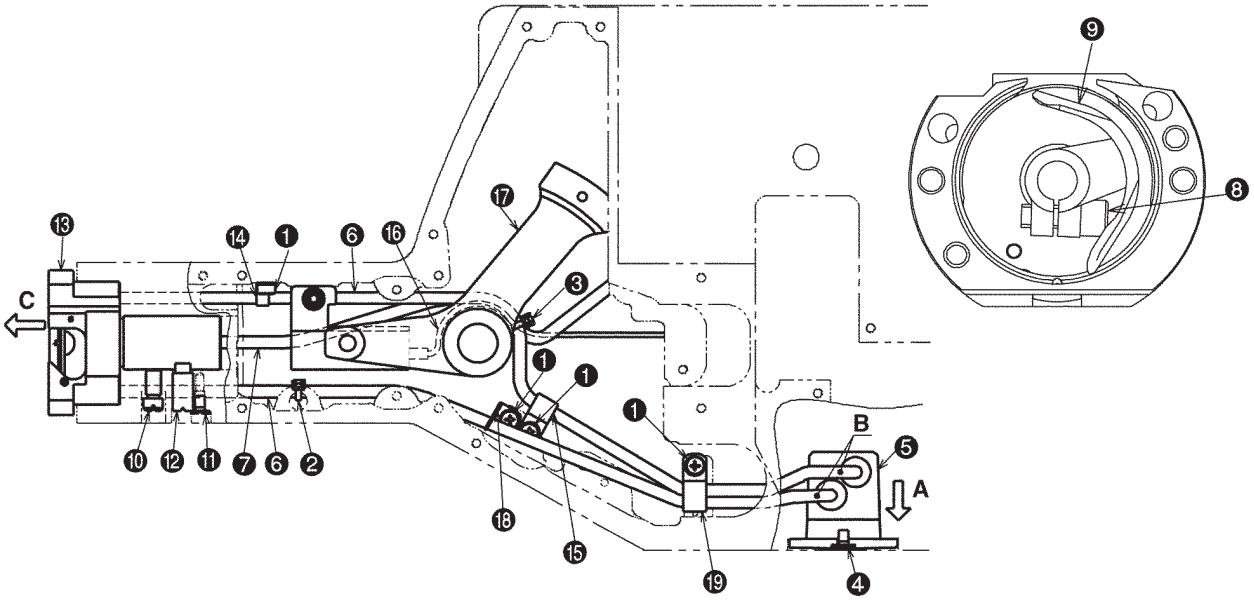
Adjustment procedures	Results of Improper adjustment
1. Loosen the setscrew ❶ and remove it. 2. When the adjusting screw ❷ is tightened, the quantity of oil can be regulated for the lubrication pipe left ❹ . 3. After adjustments, tighten the setscrew ❶ to fix it. **(Note) 1. In the state of standard shipping, the hook lubrication reducer ❸ is positioned so that it is lightly tightened and then return-loosened by 4 turns.** **2. When reducing the oil amount, the screw should not be tightened up fully. Tighten the hook lubrication reducer ❸ and then return it by 2 turns. In this position, wait for half a day to see how it goes. Too much reduction can be a cause of hook wear.**	o If the amount of hook lubricant is reduced too much, this can be a cause of frictional wear of the hook race plane or lock-up.

(8) Shuttle connection/disconnection and oil wick piping

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

Procedures of disassembling

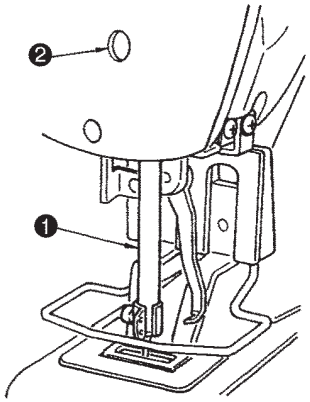
1. Loosen the 4 setscrews ❶ .
2. Cut the harness bands ❷ and ❸ .
3. Remove the setscrew ❹ and pull the oil tank ❺ in the direction of the arrow A.
4. Pull Part B upwards of the 2 lubrication pipes ❻ . Take them out of the oil tank ❺ .
5. Release the cord clamp from the rear side of the bed of the oil drain pipe ❼ .
6. Loosen the setscrew ❽ and take out the driver ❾ .
7. Loosen the setscrew ❿ .
8. Remove the setscrew ⓫ and pull out the shuttle race adjust shaft ⓬ .
9. Pull the shuttle ⓭ in the direction of the arrow C and take it out.

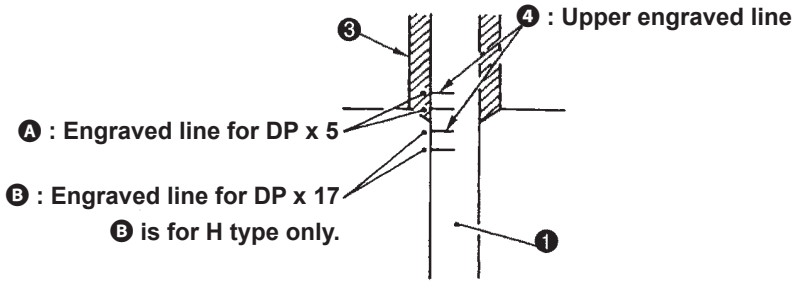


(9) Adjustment the height of the needle bar

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

Standard adjustment





Procedures of assembling

1. Pass the 2 lubrication pipes ❻ and the oil drain pipe ❼ through the frame, and mount the shuttle ⓭ .
2. Hold the lubrication pipe ❻ with the lubrication pipe holder plate ⓮ and fix it with the setscrew ❶ .
   At that time, make sure not to let the lubrication pipe ❻ come in contact with the thread trimmer connector rod.
3. Pass the lubrication pipe ❻ through the cord clamp ⓯ and fix it with the setscrew ❶ .
   At that time, the needle thread clamp sensor cord ⓰ should be passed beneath the lubrication pipe ❻ and the oil drain pipe ❼ .
   If the needle thread clamp sensor cord ⓰ is located above them, this can be a cause of abrasion or cable breakage in the crosswise feed main ⓱ .
4. Using the harness band ❷ and the lubrication pipe holder ⓲ , stretch and fix the lubrication pipe ❻ along the wall side of the frame.
   At that time, make sure not to permit the lubrication pipe ❻ to touch the needle thread clamp connector link.
5. Bundle the needle thread clamp sensor cord ⓰ , the lubrication pipe ❻ , and the oil drain pipe ❼ with the harness band ❸ .
6. Pass the 2 lubrication pipes ❻ through the cord clamp ⓳ and fix them with the setscrew ❶ .
7. Insert the 2 lubrication pipes ❻ (part B) in the oil tank ❺ . Fix the oil tank ❺ to the frame with the setscrew ❹ .
8. Fix the oil drain pipe ❼ to the rear side by means of the cord clamp.
9. Fix the shuttle ⓭ and mount the driver ❾ . (Refer to "3.-(10) Hook adjustment".)

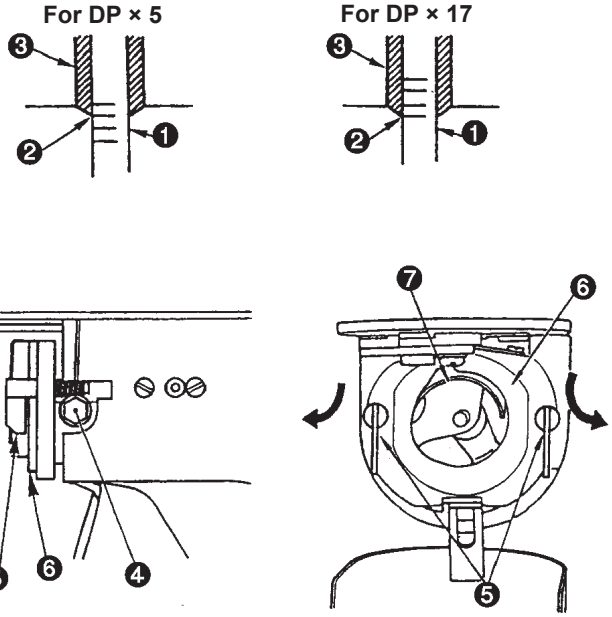
* Harness bands ❷ and ❸ : Part No. EA9500B0100

Adjustment procedures	Results of Improper adjustment
Bring needle bar ❶ to the lowest position of its stroke. Loosen needle bar connection screw ❷ and adjust so that upper marker line ❹ engraved on the needle bar aligns with the bottom end of needle bar bushing lower ❸ . **(Note) After the adjustment, make sure that there is no uneven torque.** * When stitch skipping occurs in accordance with the sewing conditions, adjust the height of the needle bar so as to lower it by 0.5 to 1 mm from the needle bar engraved line ❹ .	

(10) Hook adjustment

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

Standard adjustment



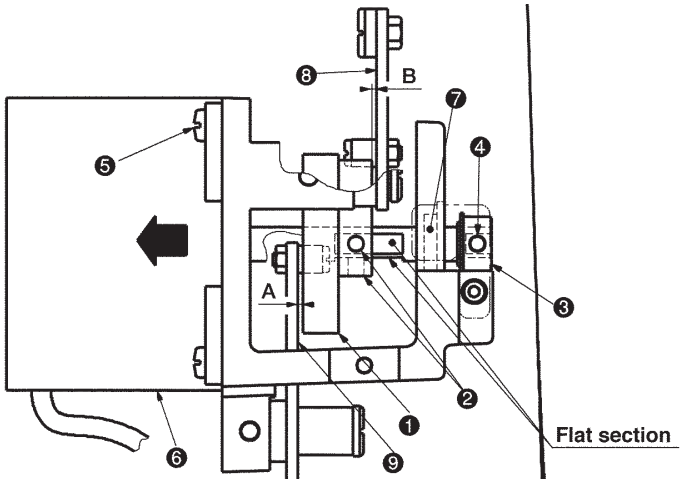
Adjustment procedures	Results of Improper adjustment
1. Turn the pulley by hand. When needle bar ❶ has gone up, adjust so that lower marker line ❷ engraved on the needle bar aligns with the bottom end of the needle bar bushing lower ❸ . 2. Loosen setscrew ❹ in the driver ❾ . Open inner hook pressers ❺ to the right and left, and remove inner hook presser ❻ . **(Note) At this time be careful not to let inner hook ❼ come off and fall.** 3. Adjust so that the blade point of inner hook ❼ aligns with the center of needle ❽ , and that a clearance of 0 mm is provided between the front end of the driver ❾ and the needle ❽ as the front end face of driver ❾ receives the needle ❽ to prevent the needle from being bent. Then tighten setscrew ❹ of the driver ❾ . 4. Loosen setscrew ⓭ of the shuttle, and adjust the longitudinal position of the shuttle. To do this adjustment, turn shuttle race adjusting shaft ⓾ clockwise or counterclockwise to provide a 0.05 to 0.1 mm clearance between needle ❽ and the blade point of inner hook ❼ . 5. After adjusting the longitudinal position of the shuttle, further adjust to provide a 7.5 mm clearance between the needle ❽ and the shuttle by adjusting the rotating direction. Then tighten setscrew ⓭ of the shuttle. **(Note) Apply a small amount of oil to race section ⓫ and oil wick ⓬ , and use the sewing machine after an extended period of disuse or cleaning the periphery of hook portion.**	(Ref) The standard value of the inner hook overrun amount (distance between the the blade point of the inner hook and the center of the needle when the blade point of the inner hook is at the extreme left of its travel) is 2.70mm. When it is out of the range from 2.5 to 3.64 mm, replace the upper shaft.

(11) Thread trimmer cam position adjustment and connection/disconnection

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

Procedures of disassembling

1. Loosen the 2 setscrews ❷ of the thread trimmer cam (cam hereafter) ❶ .
2. Loosen the 2 setscrews ❹ and remove the sensor slit ❸ .
3. Remove the 4 setscrews ❺ and take out the work clamp foot lifting motor ❻ in the direction of the arrow. In some cases, the bearing ❼ and the motor shaft seem to be tightly coupled. Pull out the motor shaft in the direction of the arrow straightforward in order not to hurt the bearing ❼ .
   At that time, the cam ❶ may come down. Handle it with care, not to damage it.

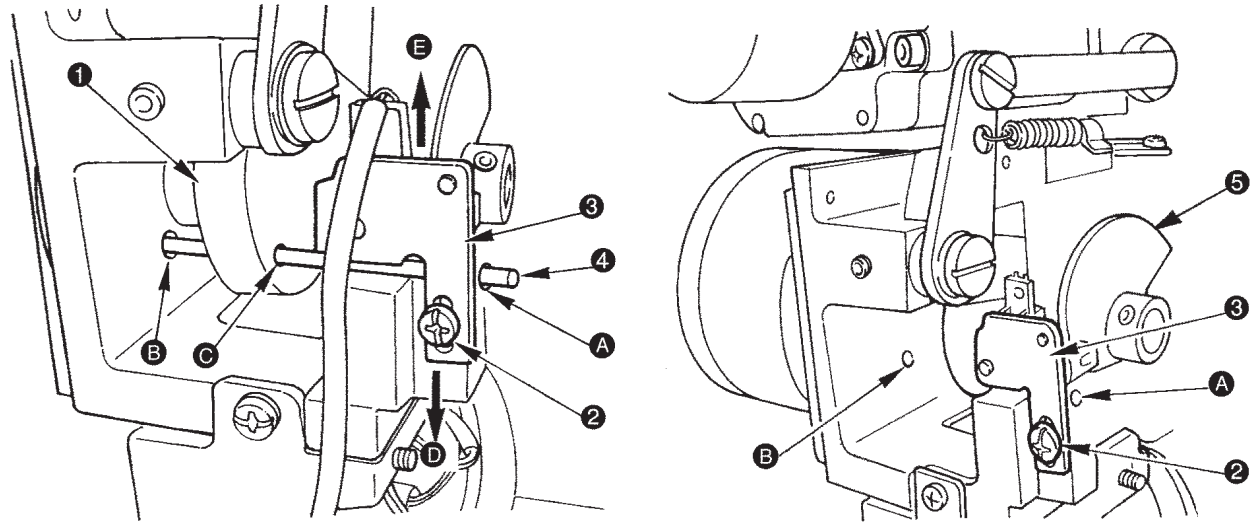


(12) Thread trimmer/work clamp foot origin sensor adjustment

WARNING :
As the work is performed while the power is ON, never touch the switches other than the necessary one so as to prevent accidents caused by the malfunction of switches.

Standard adjustment

In the state of origin retrieval (Start Switch ON) in the check program 06, the standard holes Ⓐ and Ⓑ of the sewing machine frame come to coincide with the standard hole Ⓒ of the thread trimmer/work clamp foot lifter cam ❶ .



Procedures of assembling

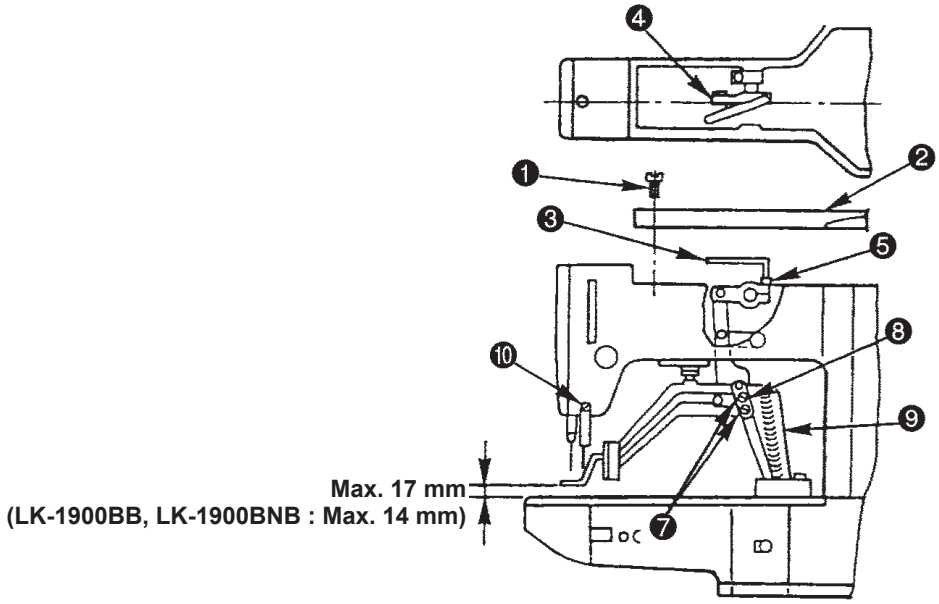
1. Apply a proper amount of grease (JUKI Grease A) to the grooved cam block of the cam ❶ , the peripheral cam block, and the rollers of the work clamp foot lifter link ❽ and the thread trimmer link ❾ . Refer to "7.-(2) Parts to which grease is applied".
2. While the cam ❶ is being inserted in the shaft of the work clamp foot lifting motor ❻ , mount the assembly on the sewing machine frame and tighten the 4 setscrews ❺ . The insertion of the cam should be done gently in order not to hurt the bearing ❼ .
3. Clearance B toward the work clamp foot lifter link ❽ and Clearance A toward the thread trimmer link ❾ should be equally distributed. For this purpose, adjust the position of the cam ❶ and fix it with the use of the 2 setscrews ❷ . (Apply the screws to the flat section at both ends of the shaft.)
   * If it is difficult to examine Clearance B, Clearance A should be adjusted to 0.5 to 0.7 mm during assembly.
4. Mount the sensor slit ❸ with the 2 setscrews ❹ so that the end plane of the motor shaft can approximately coincide with that of the sensor slit ❸ . (Join the flat section for installation.)
   * Confirm that the slit plate of the sensor slit ❸ does not interfere with the work clamp foot lifter sensor.
5. Refer to "3.-(12) Thread trimmer/work clamp foot origin sensor adjustment" and make sensor adjustments.

Adjustment procedures	Results of Improper adjustment
1. Select "06 Work clamp foot/thread trimming motor origin adjustment" of the check program. For details, refer to "4.-(7) Check program". 2. Tread on the pedal for the retrieval of the thread trimmer/work clamp foot lifter (cam) origin. 3. Using a bar ❹ or the like, confirm that the standard holes Ⓐ and Ⓑ of the sewing machine frame coincide with the standard hole Ⓒ of the thread trimmer and work clamp foot lifter cam ❶ . 4. If the standard hole Ⓒ of the thread trimmer/work clamp foot lifter cam ❶ stays in the upper Ⓔ direction, loosen the setscrew ❷ to move the sensor mounting plate ❸ in the lower Ⓓ direction and then fix it. If the standard hole Ⓒ of the thread trimmer/work clamp foot lifter cam ❶ stays in the lower Ⓓ direction, loosen the setscrew ❷ to move the sensor mounting plate ❸ in the upper Ⓔ direction and then fix it. After the sensor mounting plate ❸ has been fixed, push the start switch for the retrieval of the thread trimmer/work clamp foot lifter (cam) origin to confirm whether the standard holes coincide with each other. 5. Repeat the above steps 2. to 4. until the coincidence is confirmed. **(Note) Confirm that there is no mutual interference between the sensor slit plate ❺ and the sensor before tightening the setscrew ❷ .**	o If there is no coincidence of the standard holes, such a condition is regarded as a thread trimmer timing error. This can be a cause of trouble in thread trimmer or unthreading at the beginning of sewing.

(13) Adjustment of the height of the work clamp foot

WARNING :
As the work is performed while the power is ON, never touch the switches other than the necessary one so as to prevent accidents caused by the malfunction of switches.

Standard adjustment

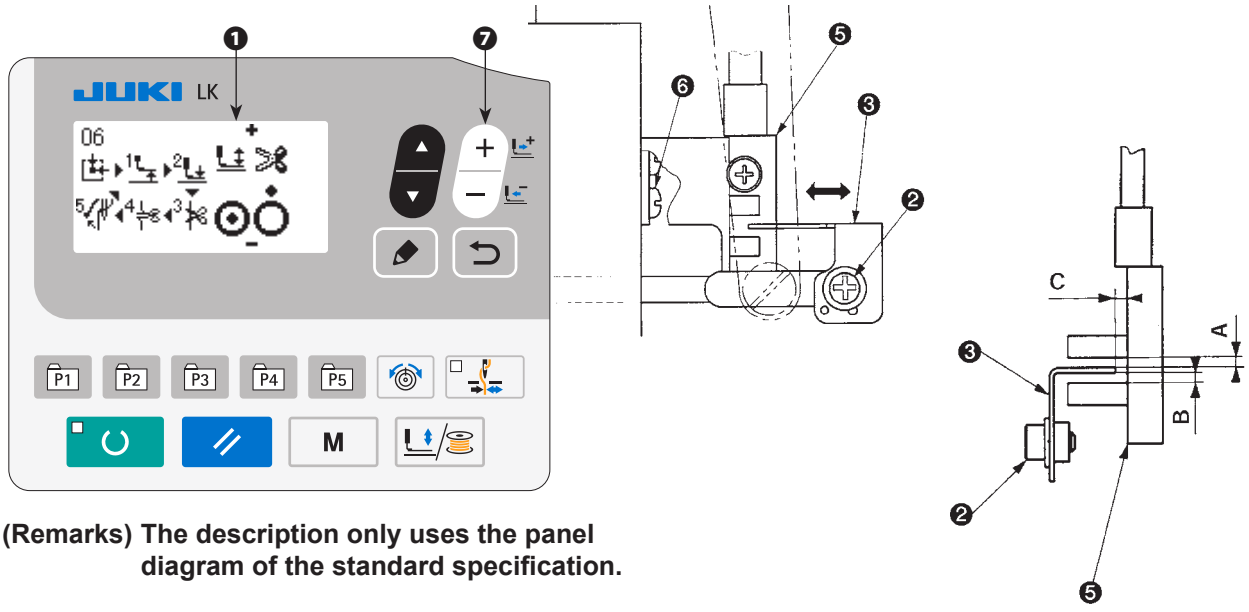


(14) Adjustment of the thread trimmer sensor

WARNING :
As the work is performed while the power is ON, never touch the switches other than the necessary one so as to prevent accidents caused by the malfunction of switches.

Standard adjustment

After the completion of origin retrieval in the check program 06 (Start Switch ON), pressing the minus key of the DATA CHANGE key ❼ in the range of 6 to 8 times will turn off the thread trimmer sensor. (The display ❶ at the operation panel "⊙⊙" → "⊙○")



(Remarks) The description only uses the panel diagram of the standard specification.

Adjustment procedures	Results of Improper adjustment
1. With the machine in stop mode, remove 6 setscrews ❶ of the top cover, and take off top cover ❷ . 2. Apply L-shaped wrench ❸ to socket bolt ❺ of clamp ❹ , and loosen the socket bolt. 3. Push down L-shaped wrench ❸ to increase the lift of the work clamp hoot, or pull it up to decrease the lift. 4. After the adjustment, securely tighten socket bolt ❺ . 5. If the right and left work clamp feet are not levelled, loosen fixing screw ❼ and adjust the position of the work clamp foot lever support plate ❽ to level them. **(Note) At this time, be careful not to cause work clamp foot lever support plate ❽ to interfere with feed bracket ❾ . If the work clamp foot levers support plate interferes with the wiper, readjust the height of the wiper using setscrew ❿ in the wiper installing base.**	

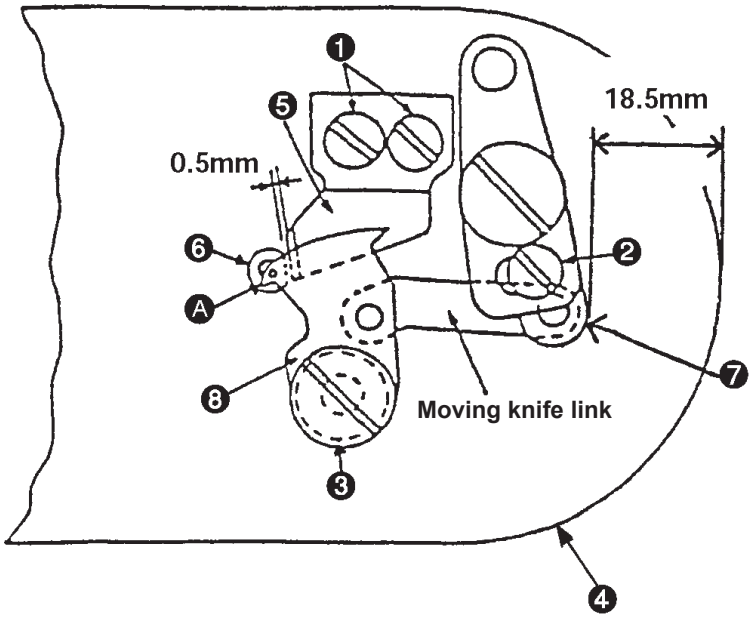
Adjustment procedures	Results of Improper adjustment
1. Select "06 Work clamp foot/thread trimming motor origin adjustment" of the check program. For details, refer to "4.-(7) Check program". 2. Tread on the pedal to perform origin retrieval for the thread trimmer/work clamp foot lifter (cam). (Confirm that the origin is in the correct position. Then, proceed to the procedures shown below. Refer to "3.-(12) Thread trimmer/work clamp foot origin sensor adjustment".) 3. Press the minus key of the DATA CHANGE key  ❼ . Confirm that the display ❶ of the operation panel is changed over from "  " → "  " when the key is pressed within the range of 6 to 8 times. 4. If the display changeover occurs deviating from the range of 6 times to 8 times, or if the display changeover does not occur at all, loosen the setscrew ❷ and make fine adjustments of the sensor slit ❸ in the directions of the arrow. 5. After the sensor slit ❸ has been fixed, tread on the pedal and make origin retrieval for the thread trimmer/work clamp foot lifter (cam). Examine the sensor changeover position in the steps 3. and 4. above. 6. Repeat the steps 2. to 5. above until the coincidence is secured. **(Note) During adjustments, check the clearances A, B, and C of the sensor slit ❸ and the sensor ❺ . If the clearances seem to be insufficient, use the setscrews ❷ and ❻ to correct the gradient. While taking this action, continue to work on the steps above.**	o If the thread trimmer sensor changeover takes place outside the range, the moving knife may interfere with the needle. This will be a cause of injury or the breakage of parts. o If the thread trimmer sensor changeover does not take place, Error 305 occurs and the sewing machine fails to start operating. o If the sensor slit ❸ has no clearance against the sensor ❺ , this can be a cause of destruction in the sensor slit ❸ or the sensor ❺ .

(15) Adjustment of the moving knife and counter knife position

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

Standard adjustment

Counter knife position : The clearance between the counter knife ❺ and the needle hole guide ❻ is 0.5 mm.
Moving knife position : Before thread trimmer operation (standby state), the distance from the throat plate ❹ to the tip of the thread trimmer lever (small) ❼ is 18.5 mm.

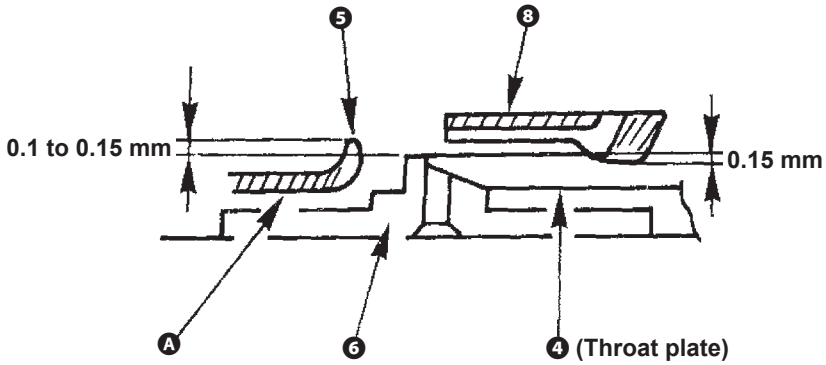


(16) Adjustment of the height of the moving knife and counter knife

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

Standard adjustment

Moving knife ❽ : The amount of mesh of the needle hole guide ❻ with the moving knife ❽ is 0.15 mm.
Counter knife ❺ : The height between the needle hole guide ❻ and the blade of the counter knife ❺ is 0.1 to 0.15 mm.



Adjustment procedures	Results of Improper adjustment
1. Counter knife position Loosen the counter knife setscrew ❶ to adjust the position. 2. Moving knife position Loosen the screw ❷ to adjust the position.	o If the clearance is less than 0.5 mm, thread may be cut by the counter knife ❺ blade when the thread is pulled with the moving knife ❽ . In this case, upper and lower threads are cut into short pieces. o If the clearance is more than 0.5 mm, the residual thread length after thread trimmer operation becomes longer beneath the work.

Adjustment procedures	Results of Improper adjustment
1. Adjustment of the height of the moving knife Adjustments should be based on the plate thickness of the washer ❸ in the above illustration. If the height seems to be inadequate, select and use the parts as specified below. 2. Adjustment of the height of the counter knife Adjust the height by prying Part Ⓐ with a screwdriver or the like.	o If the step is too small (0.25 to 0.3 mm) between the moving knife ❽ and counter knife ❺ , trouble in thread trimmer may occur. o If the step is too large (0.1 to 0.15 mm) between the needle hole guide ❻ and the counter knife ❺ , thread may be cut by the counter knife ❺ blade when the thread is pulled with the moving knife ❽ . In this case, upper and lower threads are cut into short pieces.

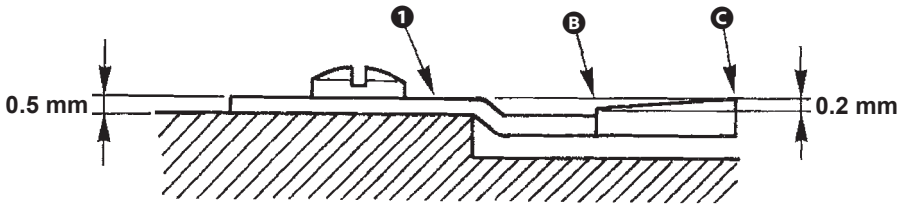
Part No.	Name of part	Thickness
B242328000A	Moving knife washer	0.4 mm
B242328000B	Moving knife washer	0.5 mm
B242328000C	Moving knife washer	0.6 mm
B242328000D	Moving knife washer	0.7 mm
B242328000E	Moving knife washer	0.8 mm
B242328000F	Moving knife washer F	0.65 mm
B242328000G	Moving knife washer G	0.75 mm

(17) Inclination of the blade point of the counter knife

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

Standard adjustment

To cut the 2 threads (needle thread and, bobbin thread) uniformly, the blade face of the counter knife ❶ is made to have an inclination of 0.2 mm.



Adjustment procedures	Results of Improper adjustment
1. If the thread on Side Ⓑ cannot be cut, grind Side Ⓒ. If the thread on Side Ⓒ cannot be cut, grind Side Ⓑ. **(Note) When grinding the side, make the angle more acuter than 90 degrees.**  **Secure an acute angle.**	o When less than 0.2 mm: Thread on Side Ⓒ cannot be cut. o When more than 0.2 mm: Thread on Side Ⓑ cannot be cut.

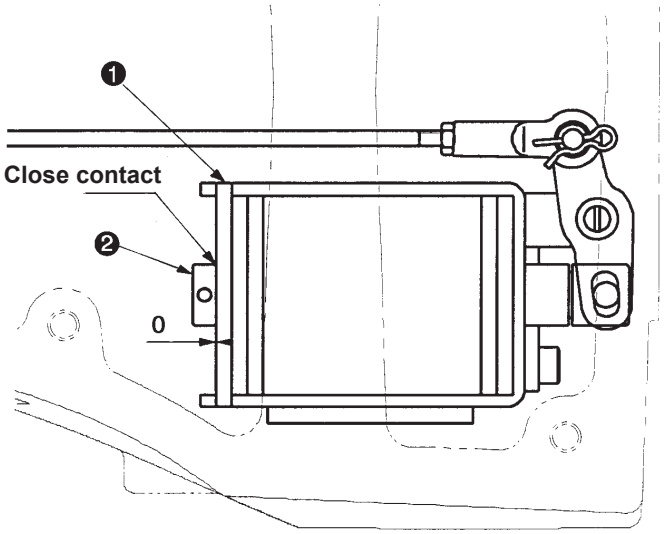
(18) Floating amount of the thread tension disk

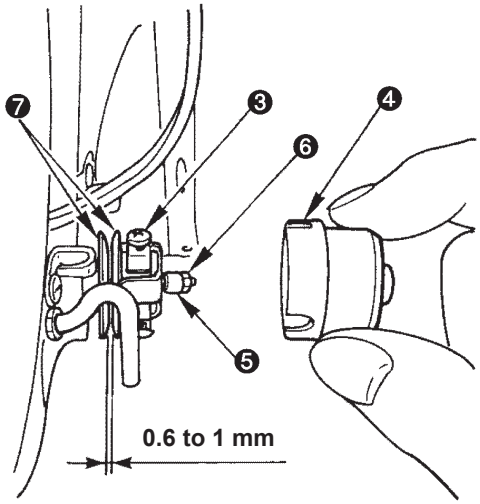
WARNING :
Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.

Standard adjustment

(LK-1900B Series, LK-1900BN Series)

When the sewing machine power supply is turned off (AT solenoid ❶ is OFF), the gap between AT thread tension discs is 0.6 to 1 mm.

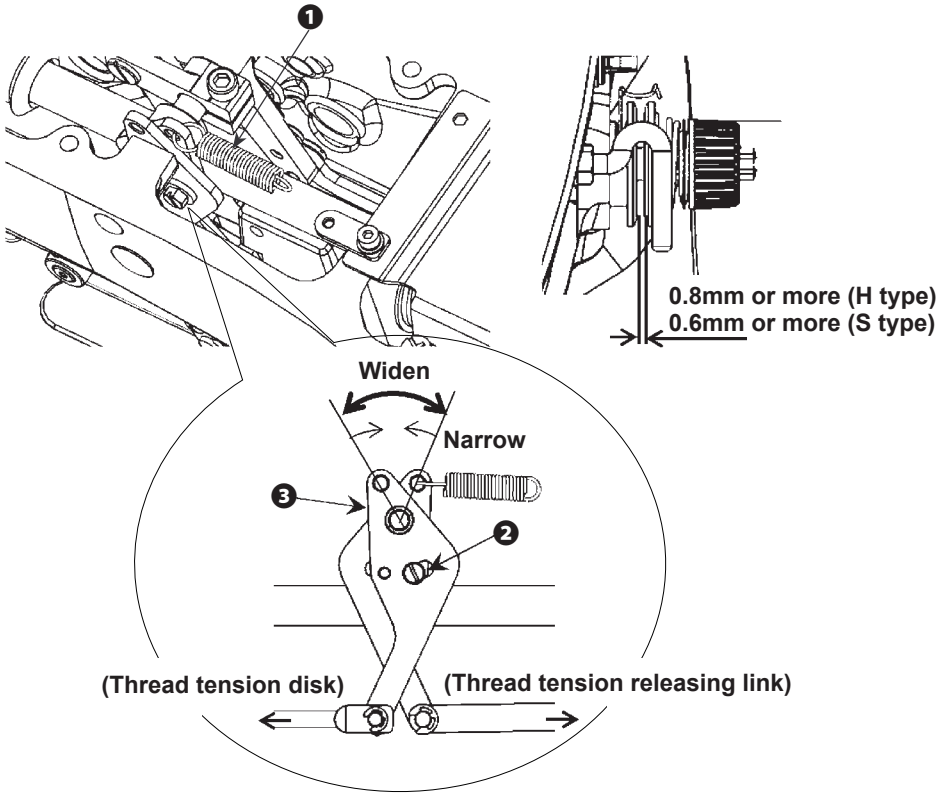




(LK-1900S Series)

For S type, the clearance between the thread tension disks at the time of thread release motion is 0.6mm or more. (Target: 0.6mm)

For H type, it is 0.8mm or more. (Target: 0.8mm)



Adjustment procedures	Results of Improper adjustment
(LK-1900B Series, LK-1900BN Series) 1. Turn off the power supply and look for any close contact between the AT solenoid ❶ and the thrust collar ❷ . 2. Loosen the three setscrews ❸ and remove the thread tension cap ❹ . 3. Hold the tension releasing pin adjust collar ❺ not to let it rotate, and loosen the nut ❻ . 4. Turn the tension releasing pin adjust collar ❺ and adjust the gap between the thread tension discs ❼ . (Adjustment of thread tension disc floating) 5. Hold the tension releasing pin adjust collar ❺ and tighten the nut ❻ . Mount the thread tension cap ❹ by means of the setscrew ❸ . 6. Turn on the power supply and set up the thread tension. Confirm that the thread tension discs ❼ are closed.	o If the amount of disc floating is too less, the residual thread length can be changed or shortened when the thread is thick. o If the amount of disc floating is too much, the tension discs cannot close completely and normal thread tension may fail to be chosen. This can be a cause of imperfect sewing.
(LK-1900S Series) 1. Remove the arm cover, and then remove the thread tension release adjustment plate return spring ❶ . 2. Loosen the thread tension release adjustment plate fixing screw ❷ . 3. Adjust the disc floating amount by moving the thread tension release adjustment plate ❸ right and left while pulling the thread release link in the direction indicated by the arrow. Then, tighten the thread tension release adjustment plate fixing screw ❷ . For S type, the clearance between the thread tension disks is 0.6mm or more (target: 0.6mm) For H type, the clearance between the thread tension disks is 0.8mm or more. (target: 0.8mm) (Important) The thread tension disc floating amount needs to be adjusted according to the thread to be used. (Supplement) Refer to "3.-(35) Adjustment of the thread take-up spring" for the thread tension at shipment.)	o If the amount of disc floating is too less, the residual thread length can be changed or shortened when the thread is thick. o If the amount of disc floating is too much, the tension discs cannot close completely and normal thread tension may fail to be chosen. This can be a cause of imperfect sewing.

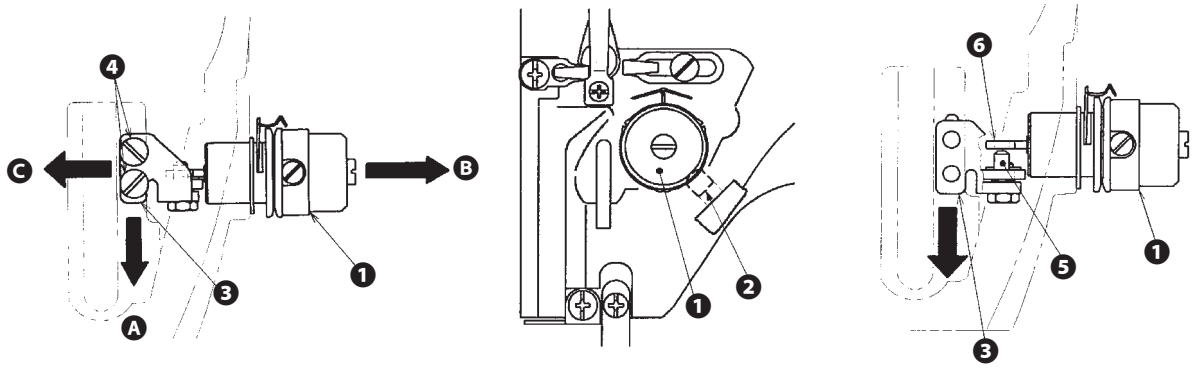
(19) Second thread tension connection/disconnection

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

Procedures of disassembling/assembling

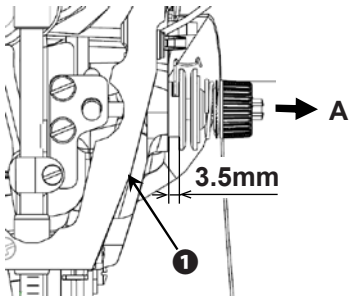
(LK-1900B Series, LK-1900BN Series)

1. Loosen the setscrew ❷ .
2. Remove the 2 setscrew ❹ .
3. Move the AT link unit (front) ❸ downwards (in the direction of the Arrow Ⓐ), and pull out the pin block ❺ from the hole of the thread tension releasing pin ❻ of the second thread tension ❶ .
4. Pull out the second thread tension ❶ to remove it. (Arrow Ⓑ)
5. For reassembly, follow the steps of 4. to 1. above.

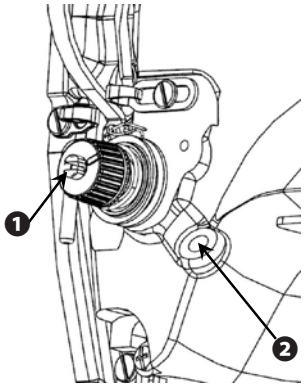


(LK-1900S Series)

1. Loosen the setscrew ❷ .
2. Pull out the second thread tension ❶ to remove it. (Arrow A)
3. When assembling, perform the above procedures in the reverse order from step 2. to step 1.
   (The clearance between the thread tension disk and the frame at the time of assembly is 3.5mm.)



Assemble with 3.5mm clearance.



Cautions for disassembly and reassembly

(LK-1900B Series, LK-1900BN Series)

1. When pulling out the second thread tension ❶ , confirm that the pin block ❺ of the AT link unit (front) ❸ has been displaced from the hole of the thread tension releasing pin ❻ . If this action is taken forcedly with the pin block ❺ left connected, this can be a cause of breaking the second thread tension ❶ .
2. When tightening the setscrew ❹ , this fixing action should be taken after the AT link unit (front) ❸ has been moved to the left side (in the direction of the arrow Ⓒ). If it is not moved to the left side (in the direction of the arrow Ⓒ), the amount of tension disc floating may fail to be adjusted normally.
3. After reassembly, follow the steps for the adjustment of thread tension disc floating and thread take-up spring stroke. (Refer to the instruction manual.)

(LK-1900S Series)

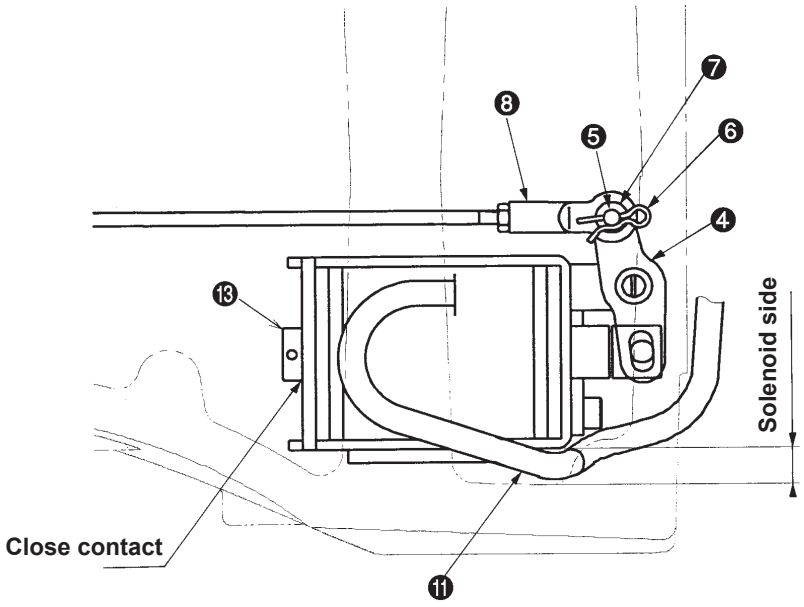
1. After reassembly, follow the steps for the adjustment of thread tension disc floating and thread take-up spring stroke. (Refer to the instruction manual.)

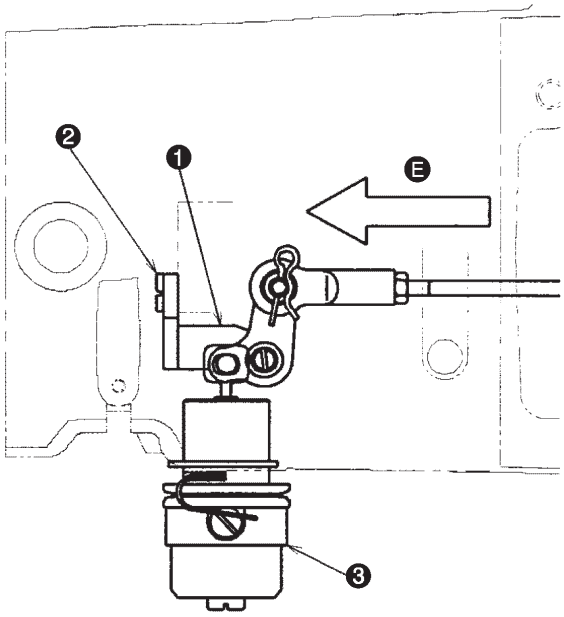
(20) AT unit connection/disconnection (LK-1900B Series, LK-1900BN Series)

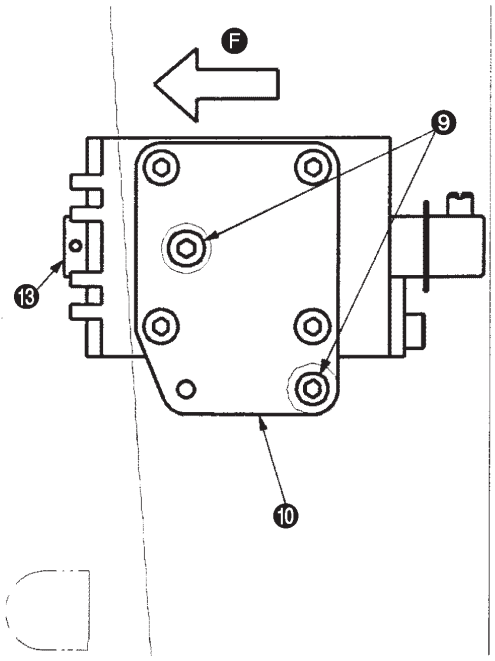
WARNING :
Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.

Procedures of disassembling/assembling

1. Remove the setscrew ❷ of the AT link unit (front) ❶ and take out the second thread tension ❸ . (Refer to "3.-(19) Second thread tension connection/disconnection".)
2. Draw out the cotter pin ❻ from the pin block ❺ of the AT link unit (rear) ❹ . Be careful not to drop the washer ❼ at that time.
   * Work becomes easier if the main shaft motor is removed.
3. Lift the joint block ❽ of the AT unit upwards and take it off the pin block ❺ of the AT link unit (rear) ❹ .
4. Draw out the AT link unit (front) ❶ from the plane side (in the direction of the arrow Ⓔ) and remove it.
5. Remove the 2 setscrews ❾ and take out the AT solenoid unit ❿ .
6. For reassembly, follow the steps of 5. to 1. above.

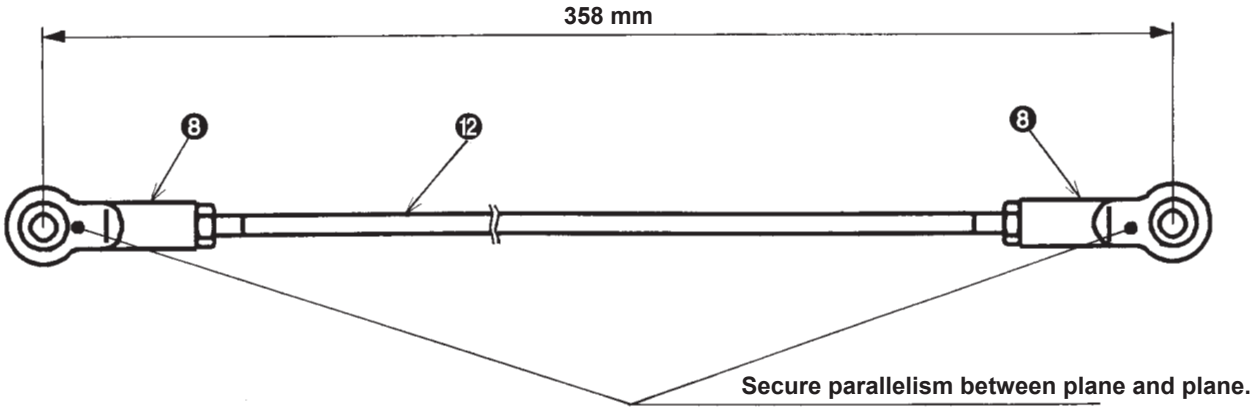






Cautions for disassembly and reassembly

1. When incorporating the AT solenoid unit ⑩ , the solenoid cable ⑪ should be laid beside the AT solenoid. If this solenoid cable ⑪ is positioned in the vicinity of the AT link unit (rear) ④ , this will be a cause of AT solenoid malfunction.
2. The center-to-center distance is 358 mm between the AT joint block ⑧ of the AT connector rod ⑫ .
   In cases of disassembly and reassembly of the AT joint block ⑧ , the center-to-center distance must be secured correctly. In addition, the parallelism of the 2 front and rear joint block ⑧ must also be secured, without fail. If the correct distance and parallelism are lost, this can be a cause of AT malfunction and normal sewing tension cannot be obtained.
3. Upon the completion of all reassembly work, confirm that there is a close contact between the thrust collar ⑬ and the AT solenoid unit ⑩ . If any clearance is perceived, loosen the 2 setscrews ⑨ and assemble the AT solenoid unit ⑩ after it has been moved to the left side (in the direction of the arrow Ⓕ).
   * If the above-mentioned center-to-center distance is great between the AT joint block ⑧ , the clearance will be opened wider.

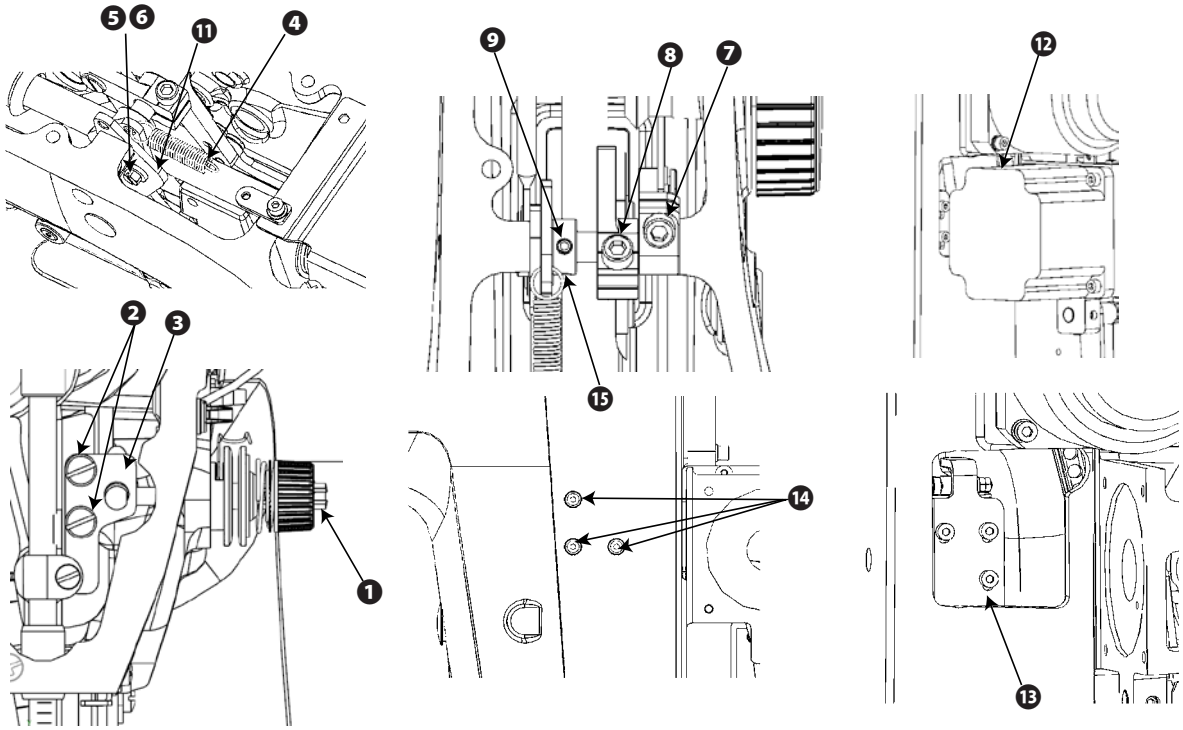


(21) Thread tension release unit installing/removing (LK-1900S Series)

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

Procedures of disassembling/assembling

1. Remove the second thread tension ❶ . Refer to “3.-(19) Second thread tension connection/ disconnection.”
2. Remove the setscrews ❷ of the threa release guide and take out the thread tension guide ❸ .
3. Remove the thread tension release adjustment plate return spring ❹ and take out the thread tension release adjustment plate fixing screw ❺ not to lose the washer ❻ .
4. Loosen the interlock connecting arm ❼ , press-down arm ❽ , thrust collar setscrew ❾ and pull out the connecting shaft ❿ .
5. Remove the thread tension release adjustment plate ⓫ .
6. Remove the presser lifter motor ⓬ referring to “3.-(11) Thread trimmer com position adjustment and connection/ disconnection”.
7. Remove three set screws ⓮ and remove the thread tension release solenoid unit ⓭ from the rear plane.
8. When assembling, perform the above procedures in the reverse order from step 7. to step 1.
   * After assembling, adjust the wiper, presser lifter, and disk rise.



Cautions for disassembly and reassembly

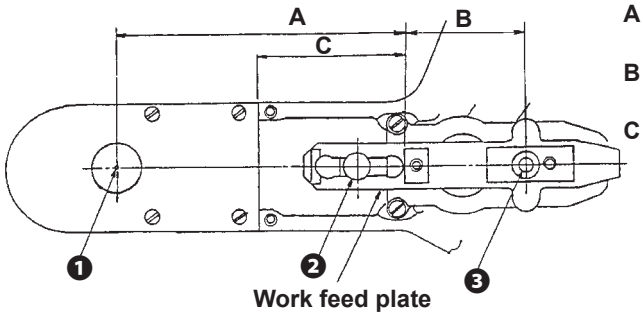
1. When assembling the presser lifter motor ⓬ , use caution not to pinch the solenoid cable.
   It can be a cause of maloperation due to disconnection.
2. To prevent the functional error, eliminate the backlash with thrust collar ⓯ so that the motor does not move with the thread tension release adjustment plate and interlock connecting shaft.

(Supplement) Refer to "3.-(35) Adjustment of the thread take-up spring" for the thread tension at shipment.)

(22) Position of the mechanical origin

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

Standard adjustment



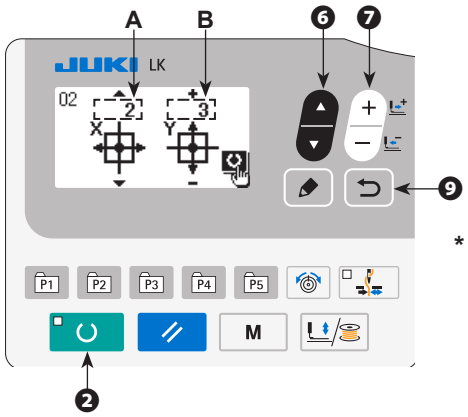
A : 147mm (LK-1900SS, 1900B, 1902B, 1900BN, 1902BN)
: 146mm (LK-1903SS, 1901B, 1903B, 1901BN, 1903BN)
B : 61mm (LK-1900SS, 1900B, 1902B, 1900BN, 1902BN)
: 62mm (LK-1903SS, 1901B, 1903B, 1901BN, 1903BN)
C : 74mm (LK-1900SS, 1900B, 1902B, 1900BN, 1902BN)
: 73mm (LK-1903SS, 1901B, 1903B, 1901BN, 1903BN)

(23) Adjustment of the Y origin

WARNING :
As the work is performed while the power is ON, never touch the switches other than the necessary one so as to prevent accidents caused by the malfunction of switches.

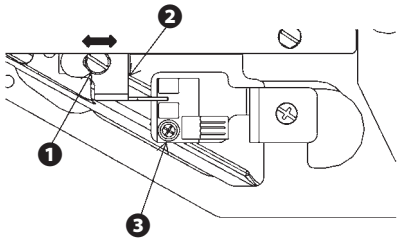
Standard adjustment

(LK-1900B Series, LK-1900BN Series)



* The description only uses the panel diagram of the standard specification.

(LK-1900S Series)



Adjustment procedures	Results of Improper adjustment
1. The position of the mechanical origin is shown in the illustration at left. 2. In the horizontal direction, the needle hole center ❶ <center of the horizontal feed fulcrum shaft ❷ > and the center of the vertical feed fulcrum shaft ❸ are aligned on a straight line. 3. Adjustments should be carried out according to "3.-(23) Adjustment of the Y origin" and "3.-(24) Adjustment of the X origin".	o The maximum area cannot be secured.

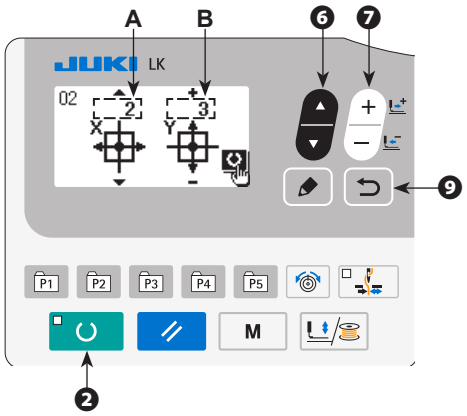
Adjustment procedures	Results of Improper adjustment
(LK-1900B Series, LK-1900BN Series) 1. Select "X/Y motor origin adjustment" of the check program. For details, refer to "4.-(7)-3) X/Y motor origin adjustment". 2. Adjust the origin to be the dimensions that were described in "3.-(22) Position of the mechanical origin" by the operation panel. **(LK-1900B Series)** 1. Select "X/Y motor origin adjustment" of the check program. For details, refer to "4.-(7)-3) X/Y motor origin adjustment". 2. Origin is searched each time the pedal is trodden on. 3. Loosen the Y sensor slit set screw ❶ and shift the position of the Y sensor slit plate ❷ so that the position described in “3.-(22) Position of the mechanical origin” is ensured. Then, tighten the setscrew ❶ . 4. Once again, tread on the pedal to search the origin, and make sure that the origin is at the position described in “3.-(22) Position of the mechanical origin”. If the position is displaced, go back to step 3 and make adjustment. **(Note) After adjustments, confirm that the Y sensor slit plate ❷ does not interfere with the Y sensor ❸ .**	

(24) Adjustment of the X origin

WARNING :
As the work is performed while the power is ON, never touch the switches other than the necessary one so as to prevent accidents caused by the malfunction of switches.

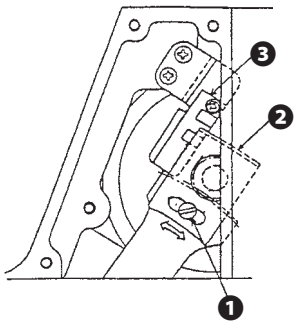
Standard adjustment

(LK-1900B Series, LK-1900BN Series)



* **The description only uses the panel diagram of the standard specification.**

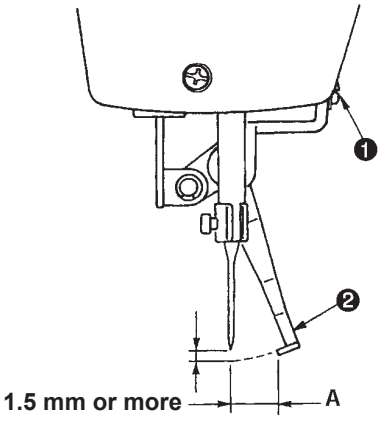
(LK-1900S Seris)



(25) Adjustment of the wiper position

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

Standard adjustment



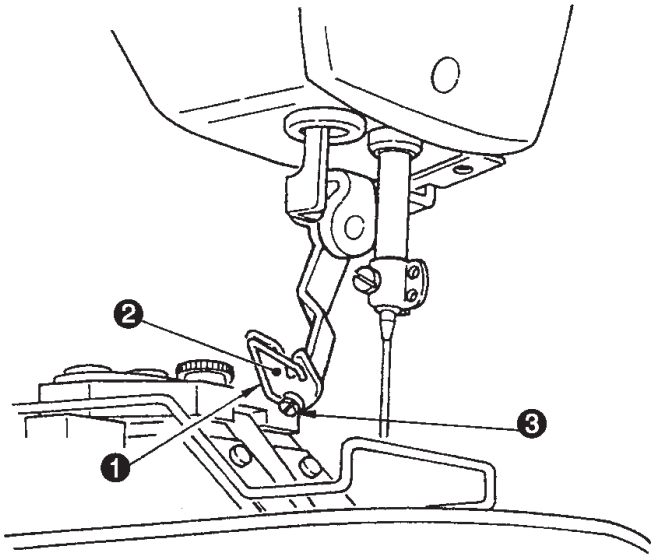
Adjustment procedures	Results of Improper adjustment
(LK-1900B Series, LK-1900BN Series) 1. Select "X/Y motor origin adjustment" of the check program. For details, refer to "4.-(7)-3) X/Y motor origin adjustment". 2. Adjust the origin to be the dimensions that were described in "3.-(22) Position of the mechanical origin" by the operation panel. **(LK-1900S Series)** 1. Select "X/Y motor origin adjustment" of the check program. For details, refer to "4.-(7)-3) X/Y motor origin adjustment". 2. Adjust the origin to be the dimensions that were described in "3.-(22) Position of the mechanical origin" by the operation panel. 3. Loosen the X sensor slit set screw ❶ and shift the position of the X sensor slit plate ❷ so that the position described in “3.-(22) Position of the mechanical origin” is ensured. Then, tighten the setscrew ❶ . 4. Once again, tread on the pedal to search the origin, and make sure that the origin is at the position described in “3.-(22) Position of the mechanical origin”. If the position is displaced, go back to step 3 and make adjustment. **(Note) After adjustments, confirm that the X sensor slit plate ❷ does not interfere with the X sensor ❸ .**	

Adjustment procedures	Results of Improper adjustment
1. Loosen the screw ❶ to adjust the clearance between the wiper ❷ and the needle so that this clearance attains 1.5 mm or more. 2. Loosen screw ❶ and adjust the distance A between the wiper ❷ end plane and the needle center until this distance attains the values specified below. After adjustments, tighten the screw ❶ firmly. Distance A between the needle center and the wiper ❷ end plane (A mm) · Other than LK-1903SS, 1903B, 1903BN : 23 to 25 mm · LK-1903SS, 1903B, 1903BN only : 15 to 17 mm * The needle stays in the position of the end of sewing and stop.	o If Distance A is too small, the work clamp foot may tread on the needle thread when the work clamp foot is lowered. At that time, the needle thread may be caught by the wiper ❷ and the needle may be broken. In particular, this must be taken into consideration when a thin needle (#11 or less) is used.

(26) Adjustment of the wiper spring (LK-1903SS, 1903B, 1903BN, 1903BB, 1903BNB)

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

Standard adjustment

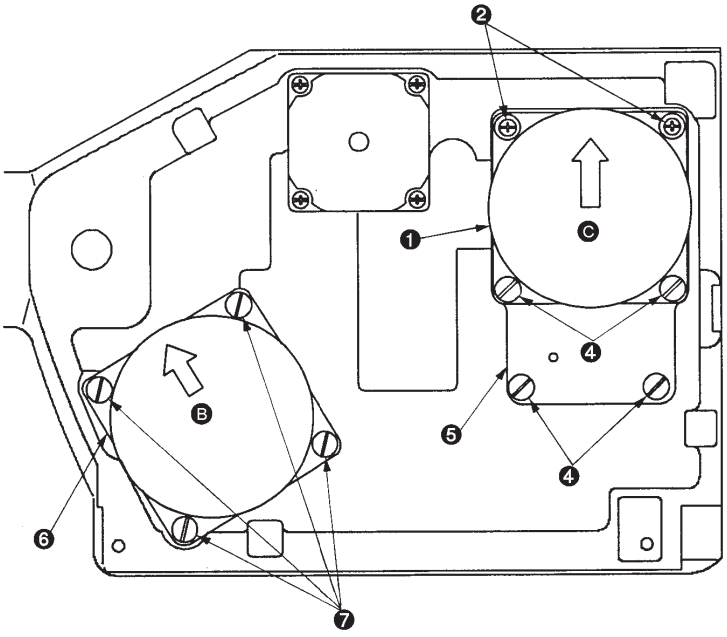


(27) Adjustment of the position of the X feed motor and the Y feed motor (Adjustment of the backlash of the driving gear)

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

Standard adjustment

1. Fix the Y feed motor ❶ by pressing it in the direction of the arrow Ⓒ.
2. Fix the X feed motor ❻ by pressing it in the direction of the arrow Ⓑ.



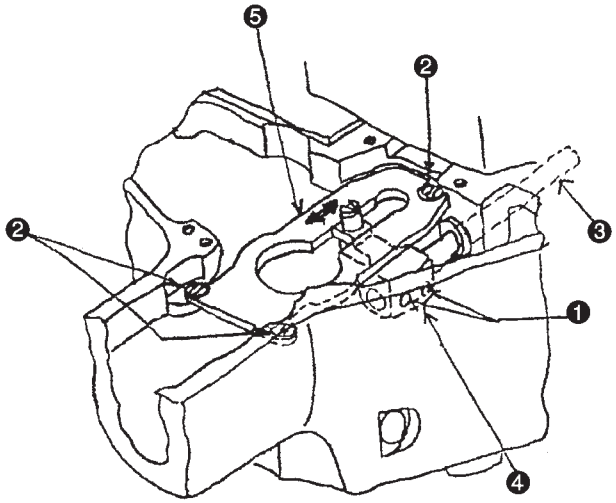
Adjustment procedures	Results of Improper adjustment
After thread cutting, the wiper spring ❶ is used to hold the needle thread with the aid of the wiper ❷ . Adjust the wiper spring ❶ and fix it with the setscrew ❸ so that the intensity of the spring force becomes 20 to 30g (somewhat stronger than that of the bobbin thread that is protruded from the bobbin case). 1. Remove the setscrew ❸ and take out the wiper spring ❶ from the wiper ❷ . 2. Adjust the wiper spring ❶ and mount it on the wiper ❷ again by means of the screw ❸ . **(Note) 1. If the holding force is too strong, the thread may be protruded above the button.** **2. If the holding force is insufficient, needle thread castoff may occur.** **3. If the wiper spring ❶ position is inadequate, the needle thread cannot be held correctly and this can be a cause of needle breakage.**	

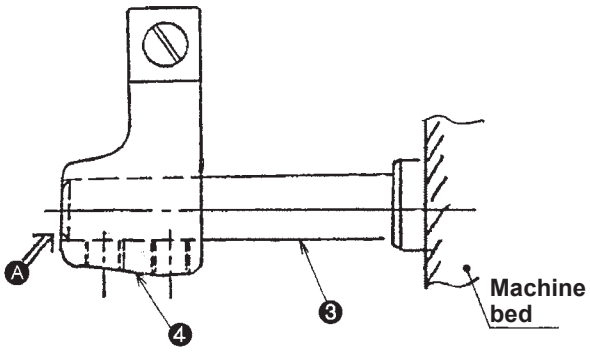
Adjustment procedures	Results of Improper adjustment
1. Loosen the 2 setscrews ❷ and 4 setscrews ❹ of the Y feed motor ❶ and the 2 setscrews ❹ of the X feed motor mounting plate ❺ . 2. Pressing it in the direction of the arrow Ⓒ, tighten the 2 upper setscrews ❷ in the first place. Then, tighten the 2 remaining setscrews ❹ and another 2 setscrews ❹ , X feed motor mounting plate ❺ . 3. Loosen the 4 setscrews ❼ of the X feed motor ❻ . Pressing it in the direction of the arrow Ⓑ, tighten the setscrew ❼ .	o If the pressing force is insufficient, feed gear backlash becomes too much and needle location accuracy may be decreased. This can also be a cause of feed error, needle breakage, etc.

(28) Installing the feed plate support plate

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

Standard adjustment



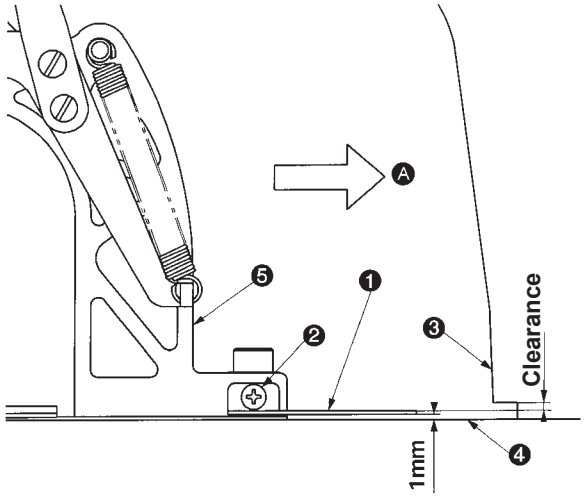


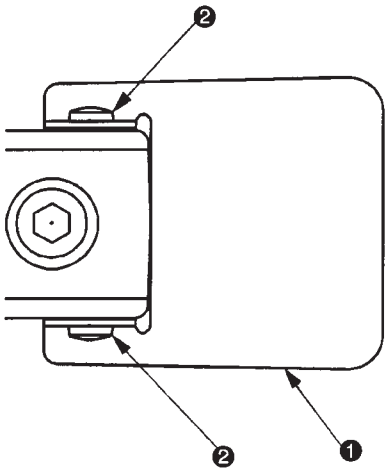
(29) Installation of the feeder bar rear cover

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

Standard adjustment

The clearance between the feeder bar rear cover ❶ and the upper surface of the work feed presser plate ❹ is about 1mm.
When the feeder bar ❺ is moved in the direction of the arrow Ⓐ, there must be a clearance at the notch part of the sewing machine frame ❸ .





Adjustment procedures	Results of Improper adjustment
(LK-1900B Series, LK-1900BN Series) 1. Loosen the Y feed arm ❹ setscrew ❶ . 2. Push the Y feed shaft ❸ in the direction of the arrow Ⓐ ⇒ . 3. Loosen the setscrews ❷ (3 pcs.) of the work feed acceptor plate. Moving the Y feed arm ❹ in the direction of the arrow ⟷ , fix the Y feed shaft ❸ to the guide and also fix the work feed acceptor plate ❺ in the position where no torque is generated. 4. Let the end planes Ⓐ of the Y feed shaft ❸ and the Y feed arm ❹ coincide with each other. Fix the Y feed arm ❹ setscrew ❶ . **(LK-1900S Series)** 1. Remove the X sensor slit setscrew and remove the X sensor slit. 2. Loosen the Y feed arm ❹ setscrew ❶ . 3. Push the Y feed shaft ❸ in the direction of the arrow Ⓐ ⇒ . 4. Loosen the setscrews ❷ (3 pcs.) of the work feed acceptor plate. Moving the Y feed arm ❹ in the direction of the arrow ⟷ , fix the Y feed shaft ❸ to the guide and also fix the work feed acceptor plate ❺ in the position where no torque is generated. 4. Let the end planes Ⓐ of the Y feed shaft ❸ and the Y feed arm ❹ coincide with each other. Fix the Y feed arm ❹ setscrew ❶ . 5. Let the end planes Ⓐ of the Y feed shaft ❸ and the Y feed arm 6. Attach the X sensor slit plate with the X sensor slit setscrew. For details on how to assemble the X sensor slit, refer to “3.-(24) Adjustment of the X origin”.	o The feeding load becomes too much and this can be a cause of feed error.

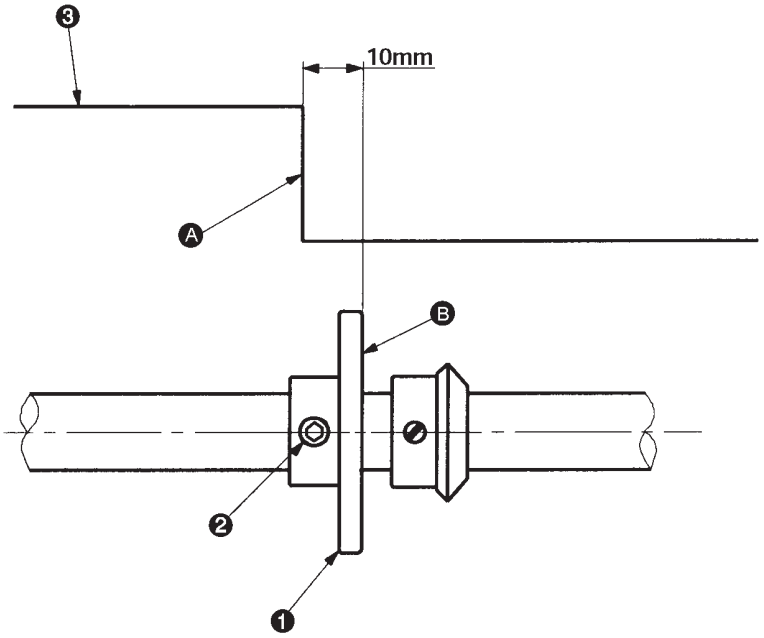
Adjustment procedures	Results of Improper adjustment
1. Loosen the 2 setscrews ❷ . 2. Make vertical adjustments of the feeder bar rear cover ❶ and secure a clearance of about 1 mm toward the upper plane of the work feed presser plate ❹ . Then, tighten the 2 setscrews ❷ . 3. Move the feeder bar ❺ in the direction of the arrow Ⓐ and confirm that there is a clearance at the notch part of the sewing machine frame ❸ . If there is no clearance and there is interference with the sewing machine frame ❸ , the steps of 1. to 2. above should be repeated again. **(Note) When tightening the setscrews ❷ , the feeder bar rear cover ❶ may be moved vertically. Hold the feeder bar rear cover ❶ firmly while the setscrews ❷ are tightened.**	o If the clearance is too small between the feeder bar rear cover ❶ and the upper plane of the work feed presser plate ❹ , the feeder bar rear cover ❶ will come in contact with the work feed presser plate ❹ due to the effect of vibration during sewing operation. This will cause noise and abrasion. o If there is no clearance between the feeder bar rear cover ❶ and the notch part of the sewing machine frame ❸ , the feeder bar rear cover ❶ will come in contact with the sewing machine frame ❸ , causing feed error during sewing operation.

(30) Adjustment of the bobbin winder driving wheel position

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

Standard adjustment

The distance is 10 mm between the measuring plane Ⓑ of the bobbin winder driving wheel ❶ and the cover mounting plane Ⓐ of the sewing machine frame ❸ .

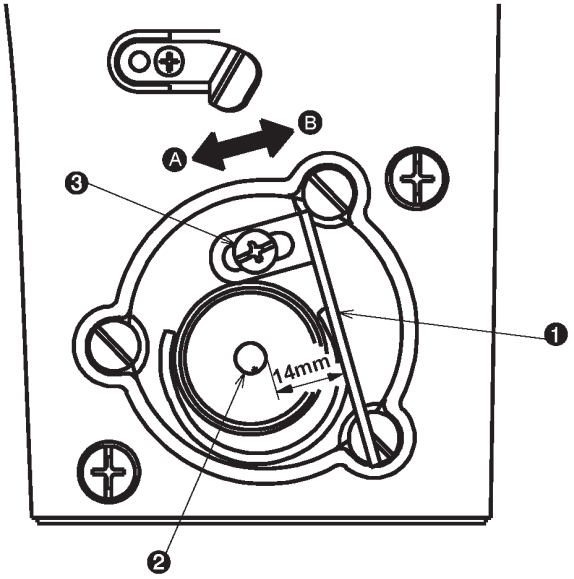


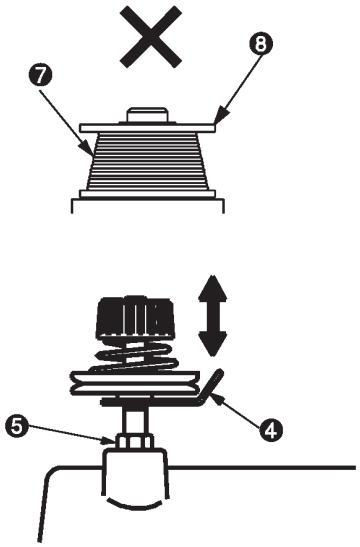
(31) Adjustment of the bobbin winder amount

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

Standard adjustment

The position of the bobbin winder lever ❶ is based on the standard that it is 14 mm apart from the bobbin winder shaft ❷ . Try to perform bobbin winding actually and make fine adjustments in the directions of the arrows Ⓐ and Ⓑ so that the amount of thread winding becomes adequate (recommended value: 80 to 90% of the bobbin).





Adjustment procedures	Results of Improper adjustment
1. Adjust the position of the bobbin winder driving wheel ❶ and fix it with 2 setscrews ❷ .	o If the distance of 10 mm is insufficient, rubber ring wear may occur in the bobbin winder unit. In addition, the bearing life may be reduced in the bobbin winder unit. o If the distance of 10 mm is excessive, normal thread winding may fail. In addition, this will also cause rubber ring slippage in the bobbin winder unit and give rise to wear.

Adjustment procedures	Results of Improper adjustment
1. Loosen the setscrew ❸ of the bobbin winder lever and adjust the distance to 14 mm between the bobbin winder lever ❶ and the bobbin winder shaft ❷ . After that, tighten the setscrew ❸ of the bobbin winder lever. 2. Start the sewing machine and wind the thread at the bobbin winder. Confirm the amount of winding. 1) If the amount of winding seems to be too much, adjust the bobbin winder lever ❶ in the direction of the arrow Ⓐ. 2) If the amount of winding seems to be too less, adjust the bobbin winder lever ❶ in the direction of the arrow Ⓑ. 3. If the winding state of the thread ❼ around the bobbin ❽ seems to be uneven, loosen the nut ❺ and adjust the height of the thread tension control ❹ . (Example) If the amount of the wound thread is less on the upper side of the bobbin ❽ as illustrated, adjust the thread tension control ❹ upwards.	o If too much thread is wound (thread protruded from the bobbin ❽), the thread ❼ will come in contact with the inside of the bobbin case and this can be a cause of sewing deficiency. o If the amount of thread winding is uneven at top and bottom of the bobbin ❽ , stitch perforation may become irregular.

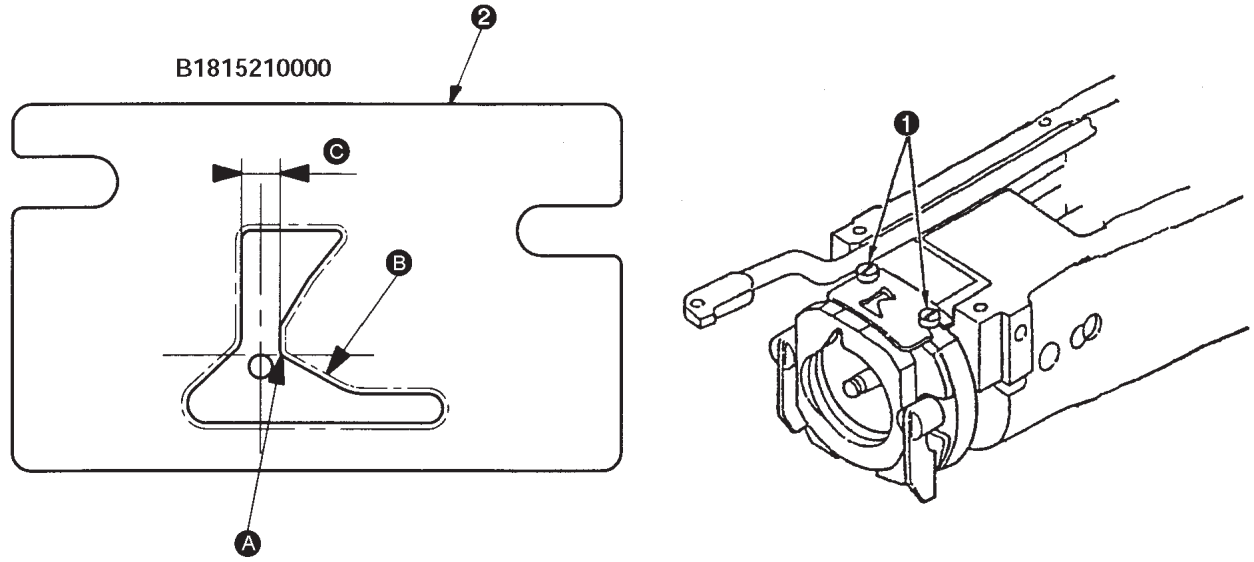
(32) Adjustment of the shuttle upper spring position (Except for LK-1900B-BS, 1900B-BF, 1903B-BS, 1900BN-BS, 1900BN-BF and 1903BN-BS)

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

Procedures of disassembling

For the right and left positions, the needle center is made to coincide with the center of the groove width ❸.
For the front and rear positions, the needle rear end is made to coincide with the corner part ❹.

(Note) If Part ❷ is damaged, this is the cause of thread breakage, hangnail of thread, stain on thread, etc. Therefore, this part should be polished by the use of a buff or the like. In particular, the rear side should be handled with care.



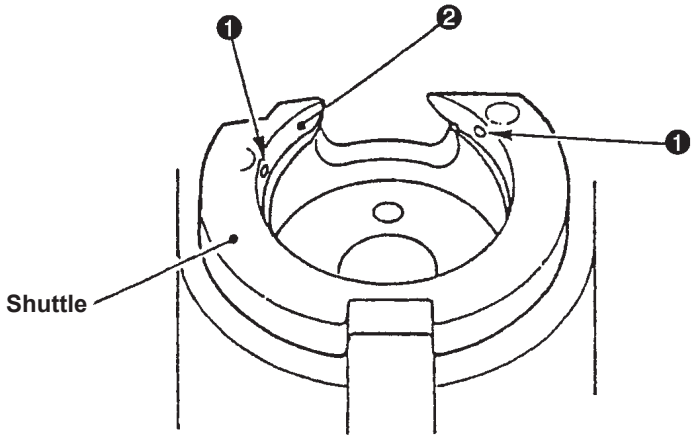
* For the LK-1900B-BS, 1900B-BF, 1903B-BS, 1900BN-BS, 1900BN-BF and 1903BN-BS refer to section 3.-(42).

(33) Shuttle felt

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

Standard adjustment

2 pieces of the shuttle felt ❶ are inserted in the holes of the shuttle race ❷ . Confirm that the shuttle felts ❶ are not overloaded when the inner hook is set and turned along the shuttle race ❷ .



Adjustment procedures	Results of Improper adjustment
1. Remove the feed bracket, feed plate, and the throat plate. Make adjustments with the screw ❶ . **(Note) The right and left positions can also change during "3.-(10) Hook adjustment". Position adjustment for the shuttle upper spring ❷ should be done after the completion of standard hook adjustment, without fail.**	o If there is a front and rear displacement or a right and left displacement, needle thread biting may occur into the hook. Too much motion to the rear side will cause the moving knife to fail to hook the needle thread. o Too much motion to the rear side will cause the moving knife to fail to hook the needle thread. o Too much motion to the left side will cause the moving knife to fail to hook the bobbin thread.

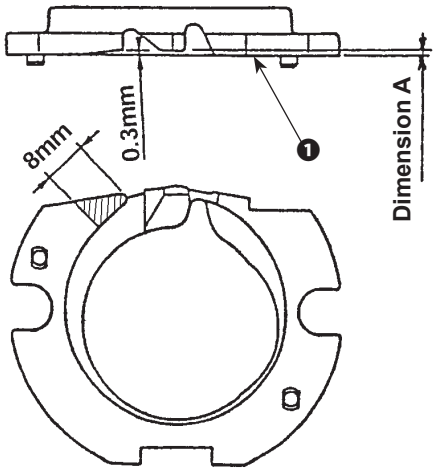
Adjustment procedures	Results of Improper adjustment
1. If the shuttle felt ❶ seems to be protruded or it has been replaced with a new one, push it in by means of tweezers or the like. **(Note) Do not push it in excessively. Align the height and the plane of the shuttle race ❷ .**	o If the shuttle felt ❶ is protruded, this will be turned into a rotary load of the inner hook, causing a sewing error. o If the shuttle felt ❶ is missing or pushed in too much, this will result in hook lubrication deficiency, causing hook overheating and wear.

(34) Shape of the inner hook presser

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

Standard adjustment

If wear seems to be too much around the pointed tip of the inner hook, release the inner hook presser ❶ and confirm that the dimensions of the hatched area on the rear side are 0.3 x 8 mm.

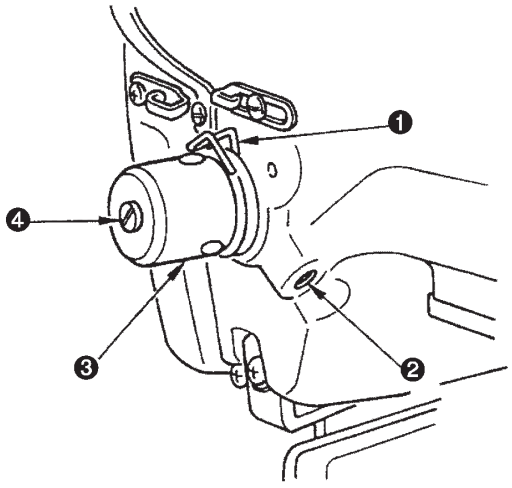


(35) Adjustment of the thread take-up spring

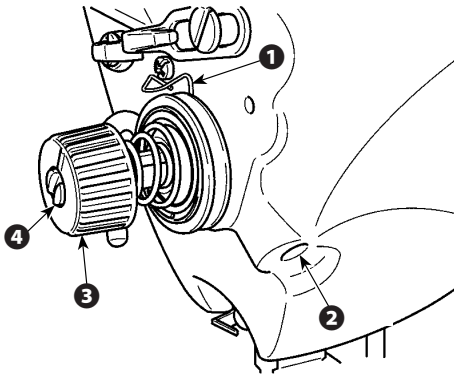
WARNING :
Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.

Standard adjustment

(LK-1900B Series, LK-1900BN Series)



(LK-1900S Series)



Thread tension for LK-1900S series

	S type	H type
Thread (needle thread/ bobbin thread)	Spun : #50	Spun : #20
Overall tension of needle thread	90 to 210g	180 to 300g
Bobbin thread tension	15 to 30g	15 to 30g

Adjustment procedures	Results of Improper adjustment
1. If the dimensions of 0.3 x 8 mm are not secured, retouching is required with the aid of an oil stone.	

Dimension A (mm)	Part No.	Name of part	Remarks	
			LK-1900B Series, LK-1900BN Series	LK-1900S Series
0.8	14103253	Inner hook presser A	Conforming to Specifications F and M as standard	Optional
1.3	14103352	Inner hook presser B	Conforming to Specifications S as standard	Conforming to Specifications S as standard
1.7	14103659	Inner hook presser C	Conforming to Specifications H as standard	Conforming to Specifications H as standard
1.9	B1817210DAD	Inner hook presser D	Optional	Optional

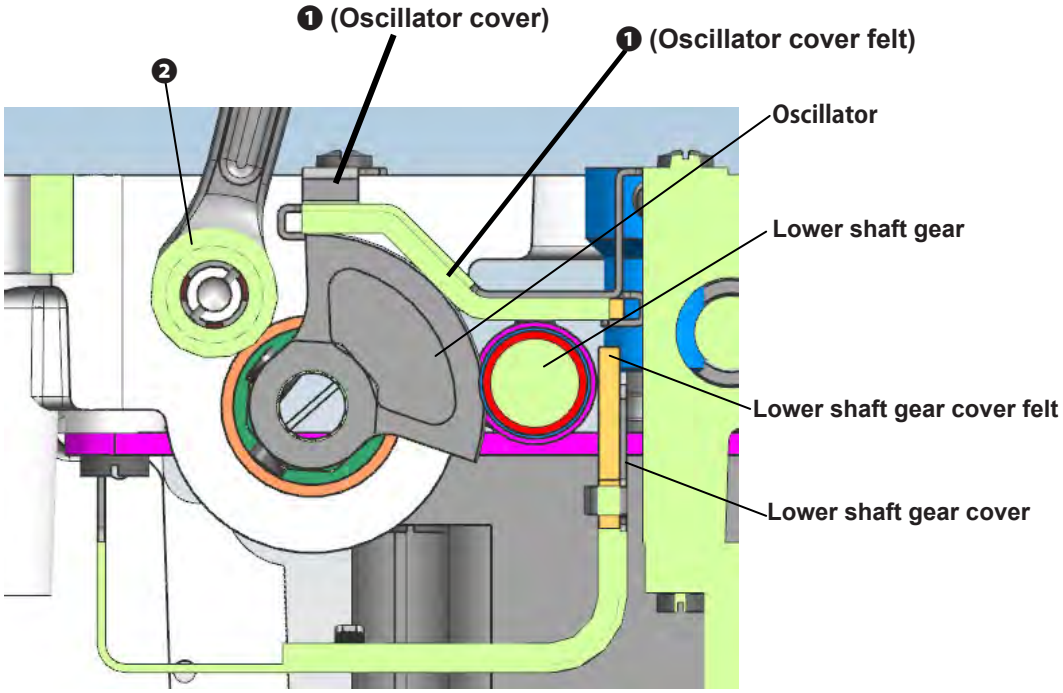
Adjustment procedures	Results of Improper adjustment
The standard stroke of thread take-up spring ❶ is 8 to 10 mm, and the pressure at the start is 0.1 to 0.3N. 1) Adjusting the stroke Loosen setscrew ❷ , and turn thread tension (asm.) ❸ . Turning it clockwise will increase the moving amount and the thread drawing amount will increase. 2) Adjusting the pressure To change the pressure of the thread take-up spring ❶ , insert a thin screwdriver into the slot of thread tension post ❹ while screw ❷ is tightened, and turn it. Turning it clockwise will increase the pressure of the thread take-up spring ❶ . Turning it counterclockwise will decrease the pressure. **Example of the thread tension** When using the sewing machine for the first time, adjust the thread tension referring to the table below.	

Thread	Material	Needle thread tension setting	Thread take-up spring moving amount [Thread drawing amount]	Strength
Tetron thread #50	Wool	30 to 35	10 mm [13 mm]	0.1N
Spun thread #50	Wool	50 to 55	10 mm [13 mm]	0.2N
Spun thread #60 (Needle thread clamp OFF)	T/C broad	30 to 35	8 to 10 mm [11 to 13 mm]	0.1N
Cotton thread #50	Denim	35 to 45	10 mm [13 mm]	0.1N
Cotton thread #20	Denim	35 to 45	8 to 10 mm [11 to 13 mm]	0.1N

(36) Installing the oscillator cover

WARNING :
As the work is performed while the power is ON, never touch the switches other than the necessary one so as to prevent accidents caused by the malfunction of switches.

Procedures of disassembling



*** New components are shown in bold.**

(Note) Soak the oscillator cover felt in JUKI oil No.2 and apply JUKI grease A.

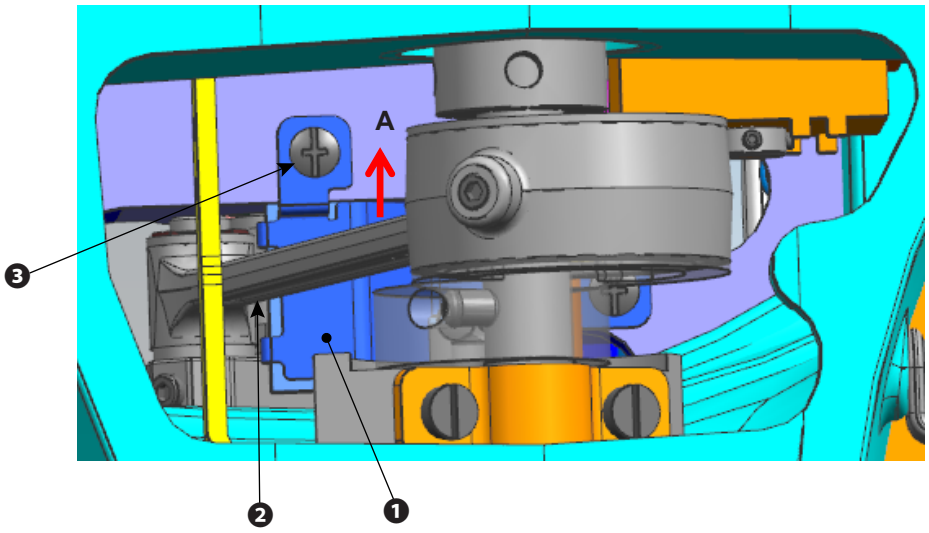
Procedures of assembling and adjustment procedures

(Preparation)

1. Soak the felt in JUKI oil No.2.
2. Remove excess oil by placing the oscillator cover (asm.) ❶ upright and leaving it until no more oil comes out of the cover.
3. Apply JUKI grease A to the felt.

(Assembly)

1. Remove the top cover and the crank rod cover.
2. Clean the installation place of the oscillator cover inside the head of the sewing machine.
3. Hook the oscillator cover (asm.) ❶ onto a spring hanger or something and lower it down from the upper surface of the arm and then lightly push it to the surface of the bed in the direction of arrow A. Then, fix it with the 2 setscrews ❷ .
4. Make sure that no torque is applied by rotating the hand pulley.
5. Attach the crank rod cover and the top cover.

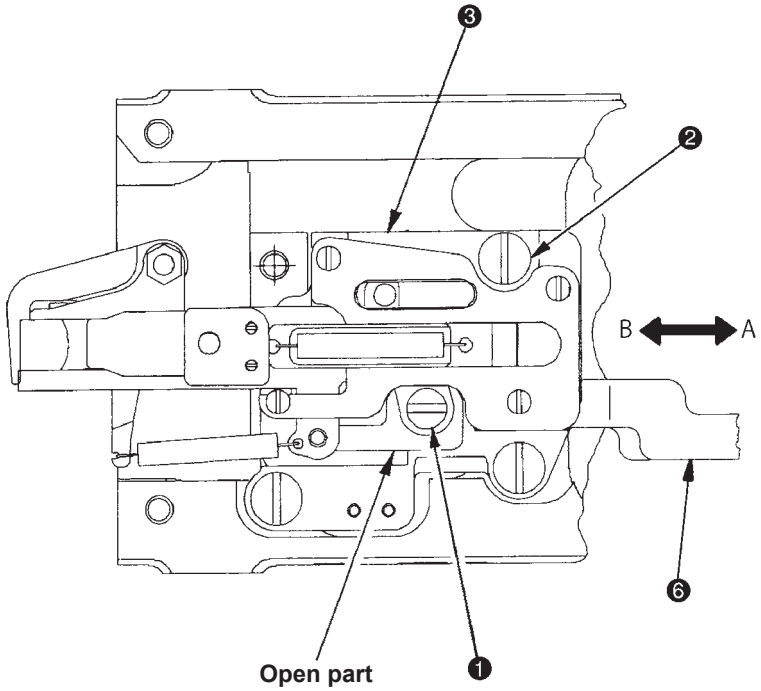


(37) Needle thread clamp device connection/disconnection (LK-1900BB, LK-1903BB, LK-1900BNB, LK-1903BNB)

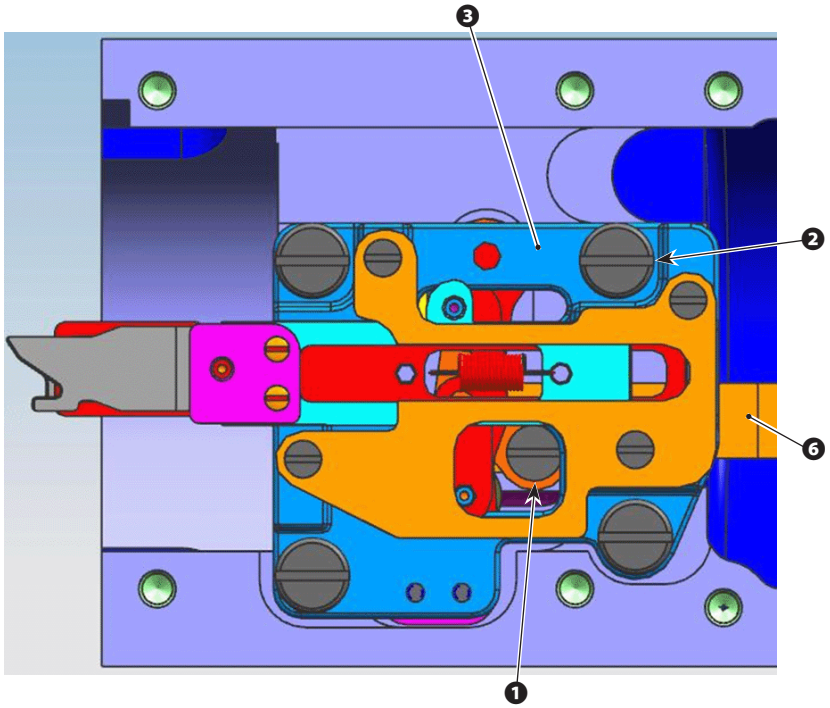
WARNING :
As the work is performed while the power is ON, never touch the switches other than the necessary one so as to prevent accidents caused by the malfunction of switches.

Procedures of disassembling

1. Remove the hinge screw ❶ .
   * If the hinge screw ❶ cannot be seen from the open part of the needle thread clamp device ❸ , try to move the needle thread clamp connector link ❻ by hand in the direction of A or B.
2. Remove the 3 (LK-1900BB, 1903BB, 1900BNB, 1903BNB : 4) setscrews ❷ of the needle thread clamp base and take out the needle thread clamp device ❸ .



[LK-1900BB, 1903BB, 1900BNB, 1903BNB (Short tail application)]

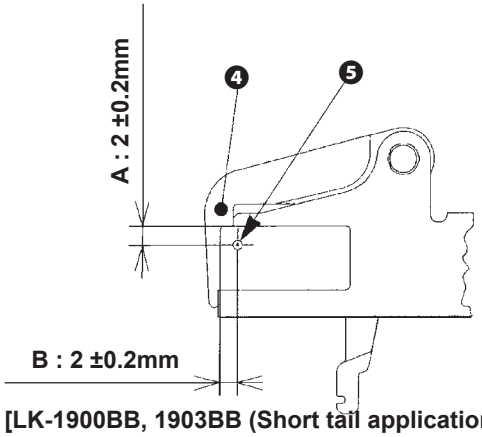


Procedures of assembling and adjustment procedures

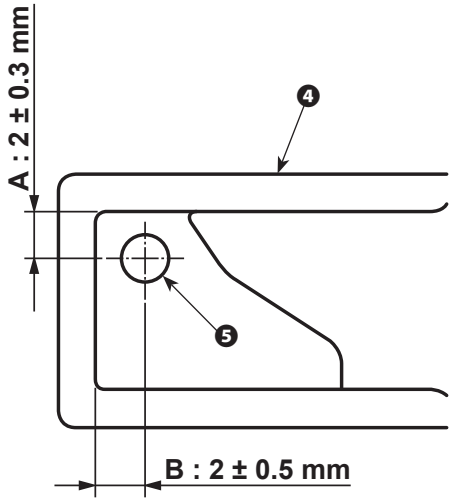
1. Push the needle thread clamp device ❸ in the direction of A and fix it with the 3 (LK-1900BB, 1903BB, 1900BNB, 1903BNB : 4) setscrews ❷ . Tighten the hinge screw ❶ .
2. Select "Needle thread clamp motor origin adjustment" of the check program.
   For details, refer to "4.-(7) Check program".
3. Try to tread on the pedal for origin retrieval.
4. Keep pressing the [+] key and move the needle thread clamp release plate ❹ to the most advanced position.
   At that time, confirm that the needle thread clamp motor does not suffer from step-out (position shift).
   If step-out should occur, slightly move the needle thread clamp device ❸ behind (in the direction of the arrow A) and make readjustment from step "3." above.
5. Confirm that the distance between the needle thread clamp release plate ❹ and center of the needle ❺ is A : 2 ± 0.2 mm and B : 2 ± 0.2 mm (LK-1900BB, 1903BB, 1900BNB, 1903BNB → A : 2 ± 0.3 mm, B : 2 ± 0.5 mm), respectively.
6. If the distance seems to be inadequate, loosen the 3 setscrews ❷ and move the needle thread clamp device ❸ for adjustment.

(Note) For the prevention of injury, the distance should be checked in the check program "Needle thread clamp motor origin adjustment".

7. After the completion of the above-mentioned reassembly, make adjustments according to "3.-(37) Adjustment of the needle thread clamp reference position".



[LK-1900BB, 1903BB (Short tail application)]

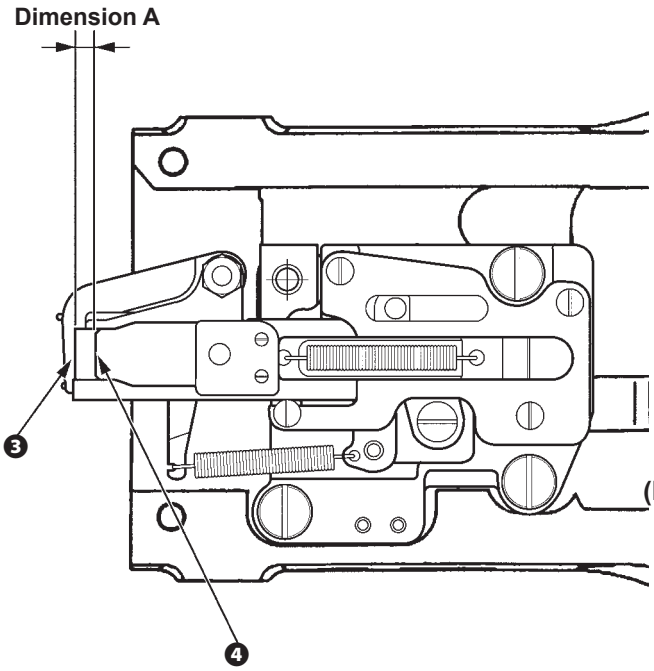


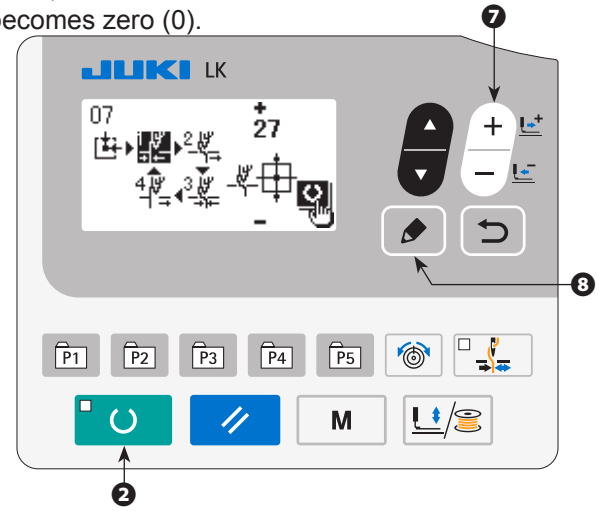
(38) Adjustment of the needle thread clamp reference position (LK-1900BB, LK-1903BB, LK-1900BNB, LK-1903BNB)

WARNING :
As the work is performed while the power is ON, never touch the switches other than the necessary one so as to prevent accidents caused by the malfunction of switches.

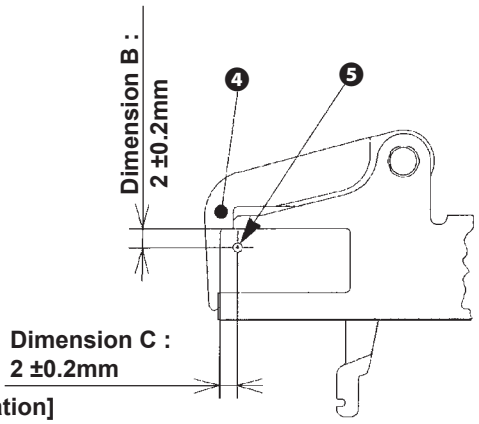
Standard adjustment

When the needle thread clamp release plate ❹ is withdrawn by 30 pulses (LK-1900BB, 1903BB, 1900BNB, 1903BNB : 32 pulses) from the standby position, the clearance A between the needle thread clamp release plate ❹ and the needle thread clamp ❸ becomes zero (0).

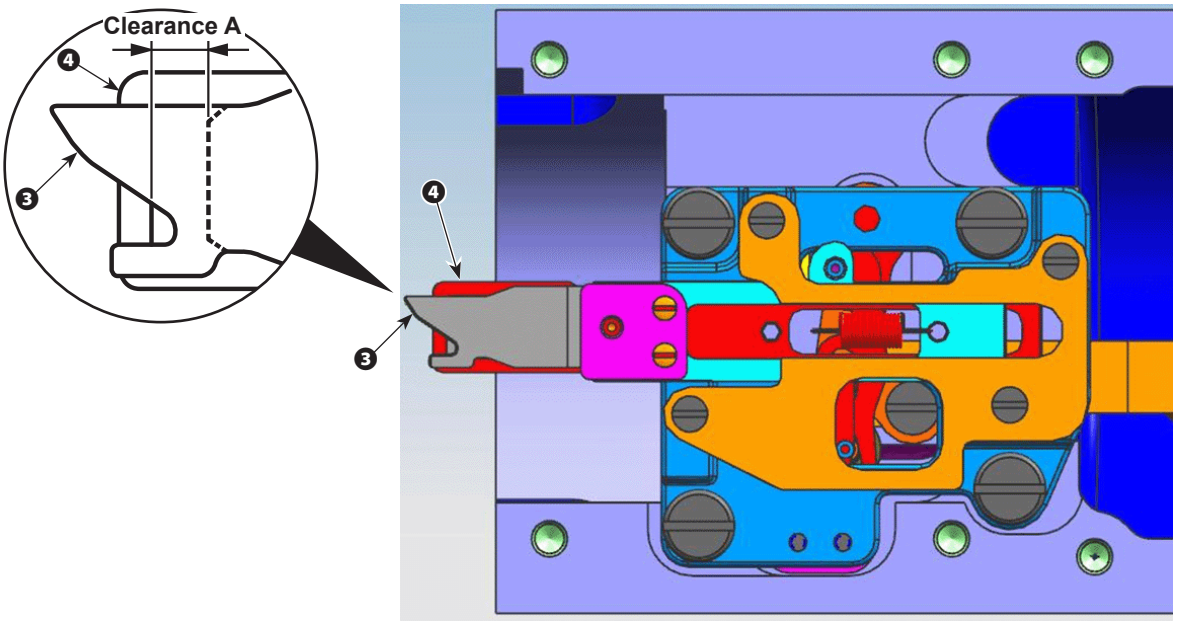




(Remarks) The description only uses the panel diagram of the standard specification.



[LK-1900BB, 1903BB, 1900BNB, 1903BNB (Short tail application]



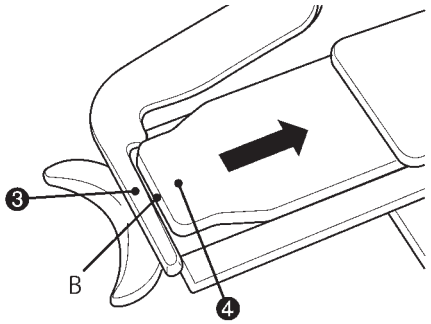
Adjustment procedures	Results of Improper adjustment
1. Select “07 Needle thread clamp motor origin adjustment” of the check program. For details, refer to "4.-(7) Check program". 2. Tread on the pedal for needle thread clamp ❸ origin retrieval. 3. Press EDIT key ❽ to set the needle thread clamp ❸ in the standby position. 4. Drive on a pulse-by-pulse step with the DATA CHANGE key ❼ Dimension A from the standby position becomes zero (0) (when the needle thread clamp release plate ❹ closes). Then, hold down the READY key pict ❷ for 2 seconds. Numeric value that is displayed on the screen will be "27". [LK-1900BB, 1903BB, 1900BNB, 1903BNB] Drive the needle thread clamp ❸ on a pulse-by-pulse step with the DATA CHANGE key ❼ until Dimension A from the standby position becomes zero (0) (when the needle thread clamp release plate ❹ closes). Then, press the "+" key of the DATA CHANGE key twice. After that, hold down the READY key ❷ for 2 seconds. Numeric value that is displayed on the screen will be "27". When numeric value is "25", clearance A between the needle thread clamp release plate ❹ and the needle thread clamp ❸ becomes zero (0). 5. Tread on the pedal for needle thread clamp ❸ origin retrieval and define it to the most advanced position by pressing EDIT key ❽ once. 6. Confirm that the distances between the needle thread clamp release plate ❹ and the needle ❺ are kept at 2±0.2mm for both Dimension B and Dimension C, respectively. 7. If the distance is found to be inadequate, adjust the position toward the needle ❺ according to "3.-(37) Needle thread clamp device connection/disconnection". Since then, perform the above adjustments again. **(Note) If the reference position is established at a wrong position, "E929 Needle thread clamp motor displacement error" can occur.** **In the case a loss-of-synchronism occurs, correctly adjust the position of the origin not by retrieving the origin with the check program "07 Needle thread clamp but setting the position of the origin of the thread clamp at a position where out-of-synchronism will not occur by moving the thread clamp back or forth by several pulses.**	[LK-1900BB, 1900BNB] o If a clearance A between the needle thread clamp release plate ❹ and the needle thread clamp ❸ is too large, needle thread at the sewing start can not be held by the needle thread clamp ❸ . As a result, needle thread remaining on the rear side of the material will be longer. If that is too small, needle thread is held in while pulling up needle thread by the thread take-up lever. As a result, a stitch failure at 1st stitch will occur. [LK-1903BB, 1903BNB] o If a clearance A between the needle thread clamp release plate ❹ and the needle thread clamp ❸ is too large, needle thread at the sewing start can not be held by the needle thread clamp ❸ . As a result, needle thread of wrong side of material is entangled. If that is too small, needle thread is held in while pulling up needle thread by the thread take-up lever. As a result, a stitch failure at the stitch will occur.

(39) Adjustment of the needle thread clamp notch (LK-1900BB, LK-1903BB, LK-1900BNB, LK-1903BNB)

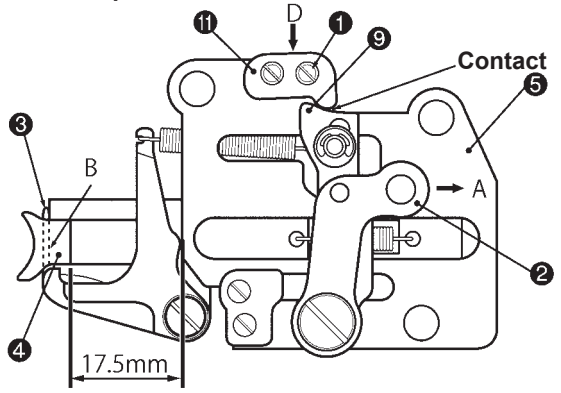
WARNING :
Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.

Standard adjustment

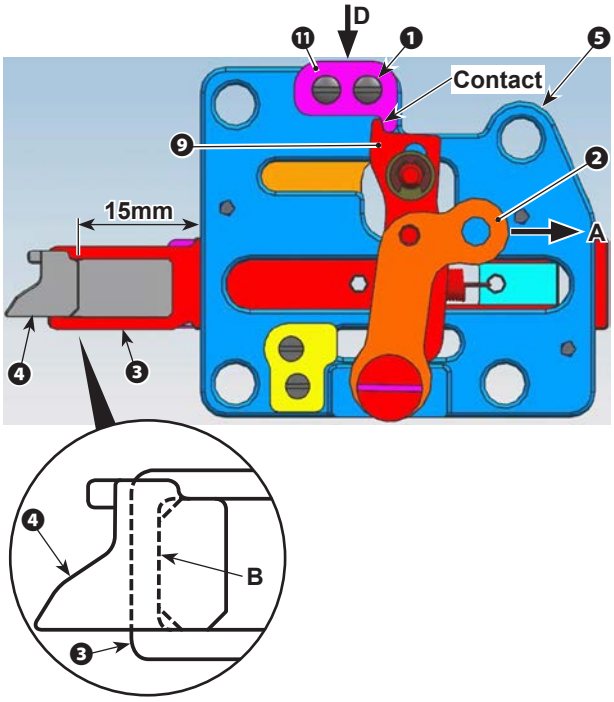
1. Needle thread clamp notch R position
   1) When the needle thread clamp link (asm.) ❷ is pushed in Direction A and Part B of the needle thread clamp support plate (asm.) ❸ and the needle thread clamp ❹ begins to open, the distance between the needle thread clamp ❹ and the needle thread clamp base ❺ becomes 17.5 mm (common to S and H type) (LK-1900BB, 1903BB, 1900BNB, 1903BNB : 15mm).



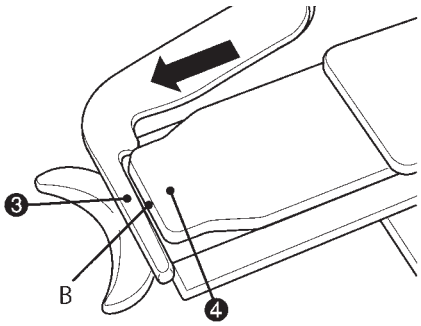
S and H : specifications in common



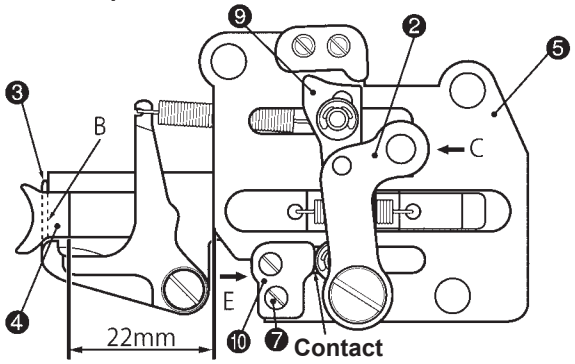
[LK-1900BB, 1903BB, 1900BNB, 1903BNB (Short tail application)]



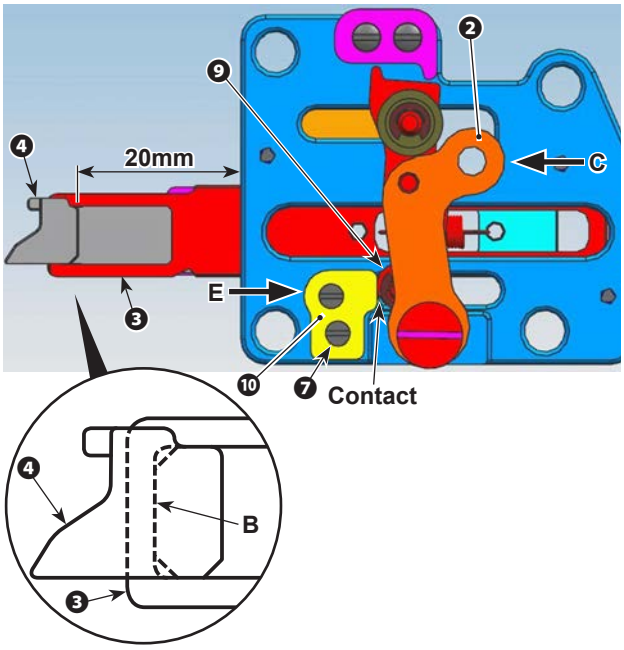
2. Needle thread clamp notch F position
   1) When the needle thread clamp link (asm.) ❷ is pushed in Direction C and Part B of the needle thread clamp support plate (asm.) ❸ and the needle thread clamp ❹ begins to open, the distance between the needle thread clamp ❹ and the needle thread clamp base ❺ becomes 22 mm (common to S and H type) (LK-1900BB, 1903BB, 1900BNB, 1903BNB : 20mm).



S and H : specifications in common



[LK-1900BB, 1903BB, 1900BNB, 1903BNB (Short tail application)]

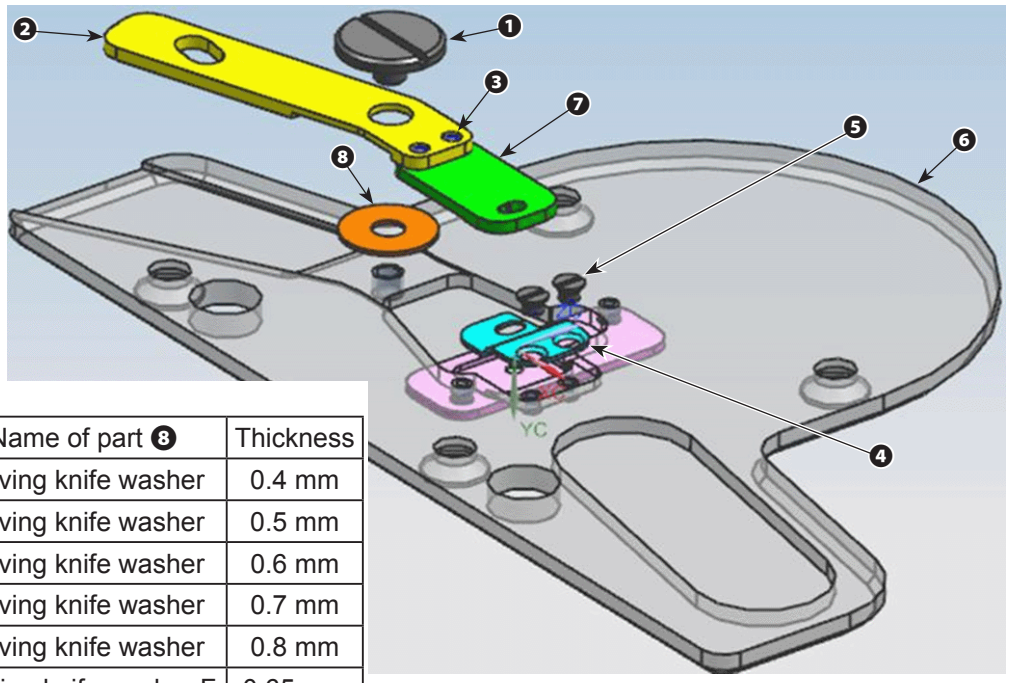


Adjustment procedures	Results of Improper adjustment
1. Needle thread clamp notch R adjustment 1) Loosen the 2 setscrews ❶ . 2) Push the needle thread clamp link (asm.) ❷ in Direction A so that the distance between the needle thread clamp ❹ and the needle thread clamp base ❺ becomes 17.5 mm (common to S and H type) (LK-1900BB, 1903BB, 1900BNB, 1903BNB : 15 mm). Move the needle thread clamp notch RH ⓫ in Direction D, lightly press it toward the needle thread clamp cam plate ❾ and tighten the 2 setscrews ❶ .	o If the distance is too long between the needle thread clamp ❹ and the needle thread clamp base ❺ , the needle thread release timing becomes earlier and this can be a cause of unthreading at the beginning of sewing. o If the distance is too short between the needle thread clamp ❹ and the needle thread clamp base ❺ , the needle thread release timing is delayed and this can be a cause of needle thread end remaining on the rear side of the material. When the needle thread clamp notch is adjusted improperly o The notch position cannot stay in the standard range even after the adjustment of the needle thread clamp sensor according to “3.-(38) Adjustment of the needle thread clamp reference position”. [LK-1900BB/BNB] o If the distance is too long between the needle thread clamp ❸ and the needle thread clamp base ❺ , needle thread can not be held during sewing. As a result, needle thread trimming failure at the beginning of sewing will occur. If the distance is too short, needle thread which has been cut is held by the needle thread clamp after sewing. As a result, needle thread may be rolled in next seam. [LK-1903BB/BNB] o A distance between the needle thread clamp ❸ and the needle thread clamp base ❺ is not in the range of standard position adjustment, needle thread which has been cut can not be sucked. As a result, needle thread may be rolled in next seam.
2. Needle thread clamp notch F adjustment 1) Loosen the 2 setscrews ❼ . 2) Push the needle thread clamp link (asm.) ❷ in Direction C so that the distance between the needle thread clamp ❹ and the needle thread clamp base ❺ becomes 22 mm (common to S and H type) (LK-1900BB, 1903BB, 1900BNB, 1903BNB : 20 mm). Move the needle thread clamp notch FH ⓾ in Direction E, lightly press it toward the needle thread clamp cam plate ❾ , and tighten the 2 setscrews ❼ .	o If the distance is too long between the needle thread clamp ❹ and the needle thread clamp base ❺ , the needle thread release timing becomes earlier and this can be a cause of needle thread end remaining on the rear side of the material or jamming of needle thread into the needle thread clamp ❹ . o If the distance is too short between the needle thread clamp ❹ and the needle thread clamp base ❺ , the needle thread clamp timing is delayed and this can be a cause of failure in needle thread clamping. When the needle thread clamp notch is adjusted improperly o The notch position cannot stay in the standard range even after the adjustment of the needle thread clamp sensor according to “3.-(38) Adjustment of the needle thread clamp reference position”.

(40) Assembling the shorter thread remaining unit (LK-1900BB, LK-1903BB, LK-1900BNB, LK-1903BNB)

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

Procedures of disassembling



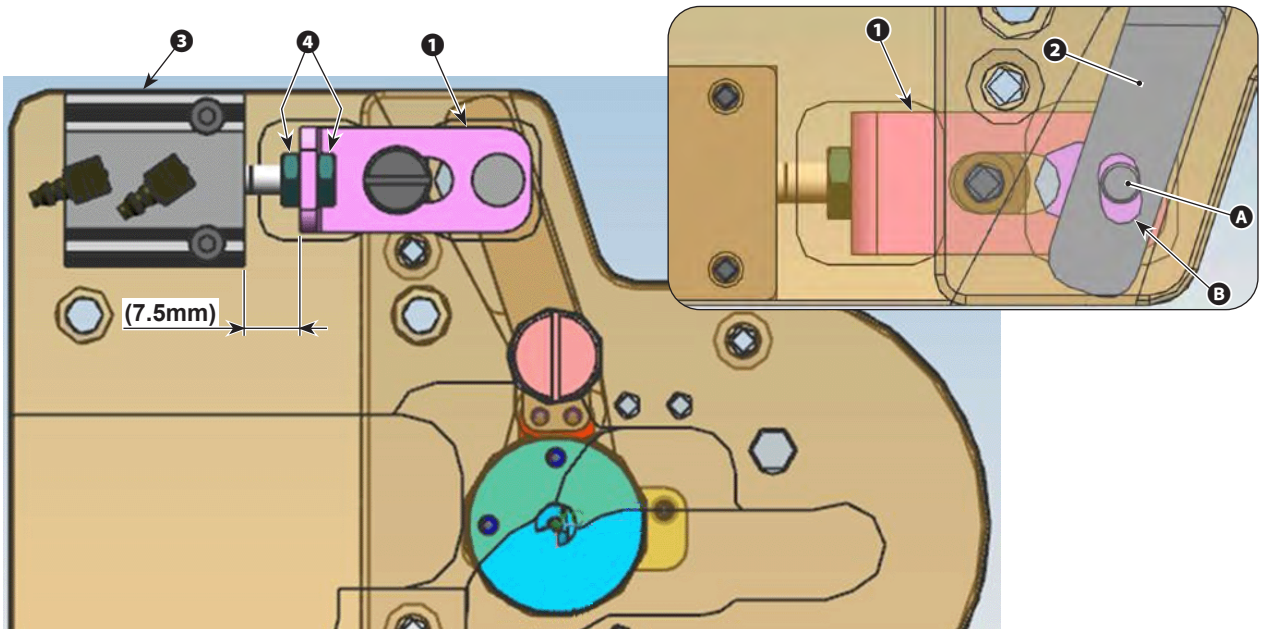
[Table 1]

Part No.	Name of part ❽	Thickness
B242328000A	Moving knife washer	0.4 mm
B242328000B	Moving knife washer	0.5 mm
B242328000C	Moving knife washer	0.6 mm
B242328000D	Moving knife washer	0.7 mm
B242328000E	Moving knife washer	0.8 mm
B242328000F	Moving knife washer F	0.65 mm
B242328000G	Moving knife washer G	0.75mm

(41) Assembling the moving knife drive section of shorter thread remaining (LK-1900BB, LK-1903BB, LK-1900BNB, LK-1903BNB)

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

Standard adjustment



Adjustment procedures	Results of Improper adjustment
[Counter knife] 1. Fix the counter knife ❹ to the throat plate ❻ with 2 setscrews ❺ . **(Note) Make sure that the hole of counter ❹ knife and the hole of needle hole guide is not shifted.** [Moving knife] 1. Fix the moving knife ❼ to the moving knife base ❷ with 2 set-screws ❸ . At this time, the moving knife ❼ becomes straight in the direction of a bend section of the moving knife base ❷ . 2. Insert the moving knife washer ❽ (see Table 1) between the throat plate ❻ and the moving knife base ❷ , fix the moving knife base ❷ with the hinge screw ❶ . 3. Move the moving knife base ❷ to back and forth, check the alignment of the moving knife ❼ and the counter knife ❹ . If movement of the moving knife ❼ is heavy , replace the moving knife washer ❽ as a thinner ones. (It is possible to perform the thread trimming in a state in which the moving knife ❼ and the counter knife ❹ is engaged lightly.) 4. Through 3 spun threads equivalent #60 from the needle hole guide of the top surface of the throat plate ❻ , move the moving knife base ❷ to confirm the thread trimming. At this time, if the thread trimming failure occurs, replace the moving knife washer ❽ as a thicker ones. * The moving knife washer ❽ is a same washer with the main thread trimming device on the throat plate, lower (asm.). (See "3.-(16) Adjustment of the height of the moving knife and counter knife".)	o The position of the moving knife ❼ is decided by a countersink screw, but when the moving knife ❼ is mounted aslant, it does not engage with the counter knife ❹ . As a result, thread trimming failure will occur. o Engagement of the moving knife ❼ and the counter knife ❹ is too tight, service life of the knives will be shortened. In addition, a load of the cylinder will increase, operation of the thread trimming unit may be worse.

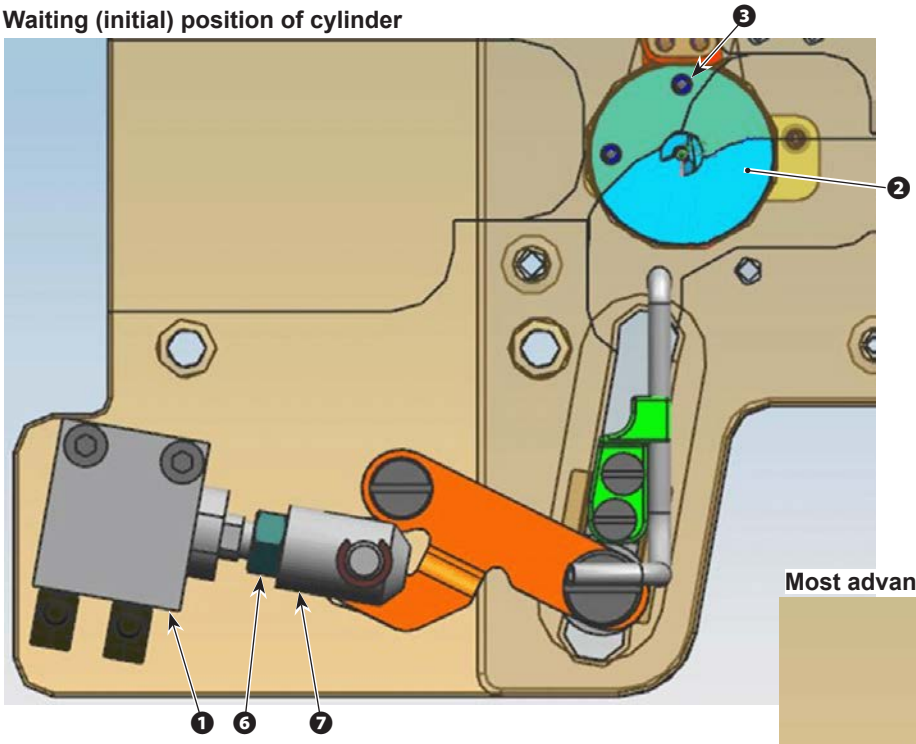
Adjustment procedures	Results of Improper adjustment
1. Insert the pin Ⓐ of cylinder guide ❶ to the elongated hole Ⓑ of moving knife base ❷ . 2. Move the cylinder ❸ to the most advanced position in a state that an air is not supplied. Adjust the initial position of moving knife by 2 nuts ❹ so that the elongated hole of blade portion of moving knife and the hole of needle hole guide are not overlap. (As a standard, a distance between the cylinder ❸ and the cylinder guide ❶ is 7.5mm.)	o If the initial position of moving knife is inadequate, the needle comes in contact with the moving knife, needle breakage will be caused.

(42) Assembling the suction pipe (LK-1900BB, LK-1903BB, LK-1900BNB, LK-1903BNB)

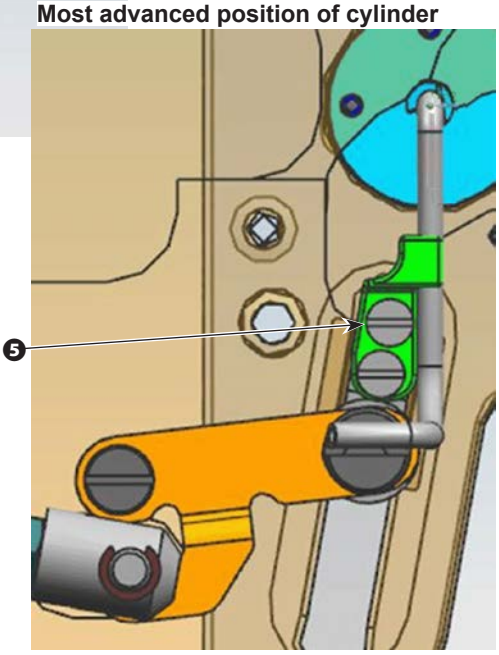
WARNING :
As the work is performed while the power is ON, never touch the switches other than the necessary one so as to prevent accidents caused by the malfunction of switches.

Standard adjustment

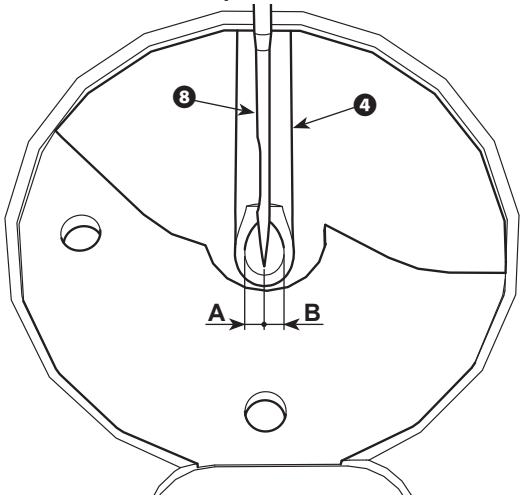
Waiting (initial) position of cylinder



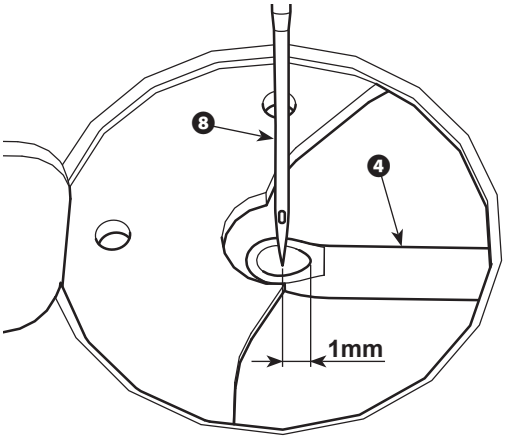
Most advanced position of cylinder



Longitudinal direction as viewed from operator's side



Lateral direction as viewed from operator's side



Adjustment procedures	Results of Improper adjustment
1. Move the suction cylinder ❶ to most advanced position. (If the air is supplied, lock the solenoid valve hook manually in most advanced position.) 2. In this state, remove the shorter thread remaining unit (throat plate upper (asm.)). Then remove 2 setscrews ❸ of the needle hole guide B ❷ . 3. Loosen 2 setscrew ❺ of the suction pipe base and adjust the position of the suction pipe ❹ so that the center of the needle ❽ may be located at the following positions towards the hole of the suction pipe ❹ , as viewed from operator's side. • Longitudinal position : Center of distribution (A=B) • Lateral position : 1 mm from the right-hand edge of the hole of the suction pipe ❹ . 4. When you cannot adjust it fully only in the adjustable range of setscrew ❺ , loosen the fixed nut ❻ of the cylinder knuckle ❼ and tighten the fixed nut ❻ at the position which has been properly adjusted by making the cylinder knuckle ❼ move back and forth. 5. After the adjustment, make sure that there is a clearance between the suction pipe ❹ and the counter knife that was attached to lower surface of the throat plate or the needle hole guide B ❷ .	o When the position of the suction pipe ❹ is inappropriate, suction of an end thread after operating the shorter thread remaining knife worsens, and a short thread remains in the lower part of the hook.

(43) Adjustment of the shuttle upper spring position (LK-1903B-BS, 1900B-BS, 1900B-BF, 1903BN-BS, 1900BN-BS, 1900BN-BF) and the lower thread holder position (LK-1903B-BS, 1903BN-BS)

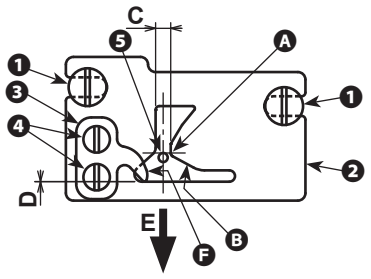
WARNING :
As the work is performed while the power is ON, never touch the switches other than the necessary one so as to prevent accidents caused by the malfunction of switches.

Standard adjustment

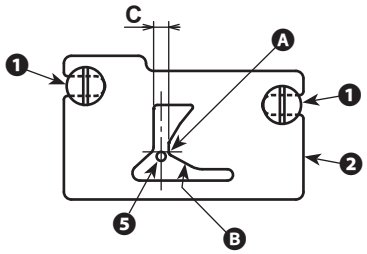
1. Shuttle upper spring ❷ (LK-1903B-BS, 1900B-BS, 1900B-BF)
   In regard to the right and left positioning, secure coincidence between the center of the needle ❺ and that of the groove width **C**.
   For the front-rear positioning, join the rear end of the needle ❺ and the corner portion Ⓐ.
2. Lower thread holder ❸ (LK-1903B-BS)
   The amount of overlapping with the shuttle upper spring ❷ should be adjusted so that cotton thread #30 can pass smoothly when it is pulled in the direction of the arrow **E**. After the best positioning has been secured, fasten the 2 setscrews ❹ .

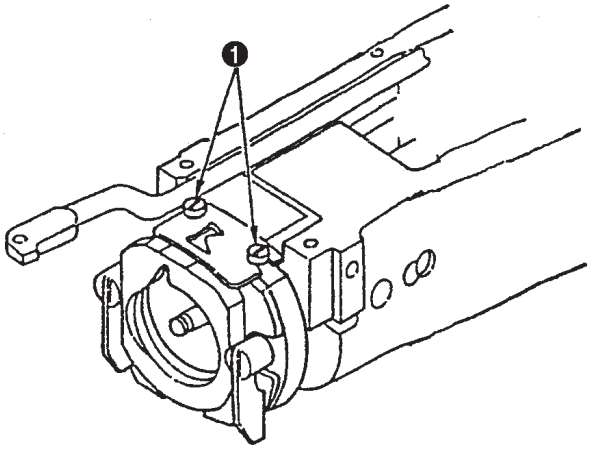
(Note) If part Ⓑ and Ⓕ is damaged, this is the cause of thread breakage, hangnail of thread, stain on thread, etc. Therefore, this part should be polished by the use of a buff or the like. In particular, the rear side should be handled with care.

[LK-1903B-BS]



[LK-1900B-BS, 1900B-BF]





Adjustment procedures	Results of Improper adjustment
1. Remove the feed bracket, the feed plate, and the throat plate. Adjust the positioning of shuttle upper spring ❷ with 2 setscrews ❶. 2. Using the setscrew ❹ , adjust the amount of overlapping **D** for the lower thread holder ❸ and the shuttle upper spring ❷ . **(Note) Right and left position of the shuttle upper spring ❷ can also change during hook adjustments. Position adjustment for the shuttle upper spring ❷ should be done after the completion of standard "3.-(10) Hook adjustment", without fail.**	o If there is a front and rear displacement or a right and left displacement, needle thread biting may occur into the hook. o Too much motion to the rear side will cause the moving knife to fail to hook the needle thread. o Too much motion to the left side will cause the moving knife to fail to hook the bobbin thread.

(44) Bobbin case with an idling prevention spring

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

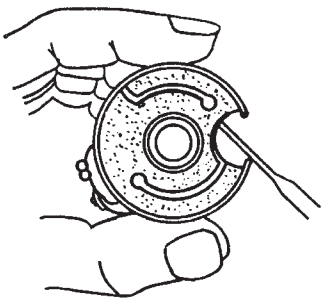
The LK-1900B and the LK-1900BN series employ the bobbin case with idling prevention spring.
Adjust the tension of the an idling prevention spring as follows:

If the bobbin races	Increase the spring tension.
If loose stitches result	Decrease the spring tension.

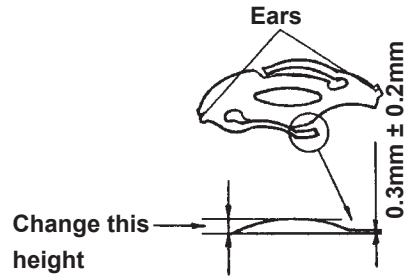
1) How to adjust the tension of the an idling prevention spring

1. Remove the spring as illustrated below, using an old sewing machine needle. (At this time, hold the spring with your thumb to prevent it from jumping out.)
2. Adjust the spring pressure by changing the height of the arch of the spring.
3. Set ear ❶ first, and insert the sewing machine needle to push the central part of the spring, then set ear ❷ .

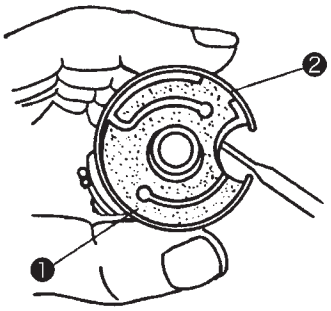
1.



2.

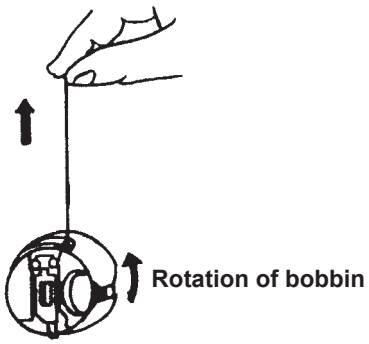


3.



2) When using a bobbin case

1. When using a bobbin case with an idling prevention spring, be sure to orient the bobbin as shown below:



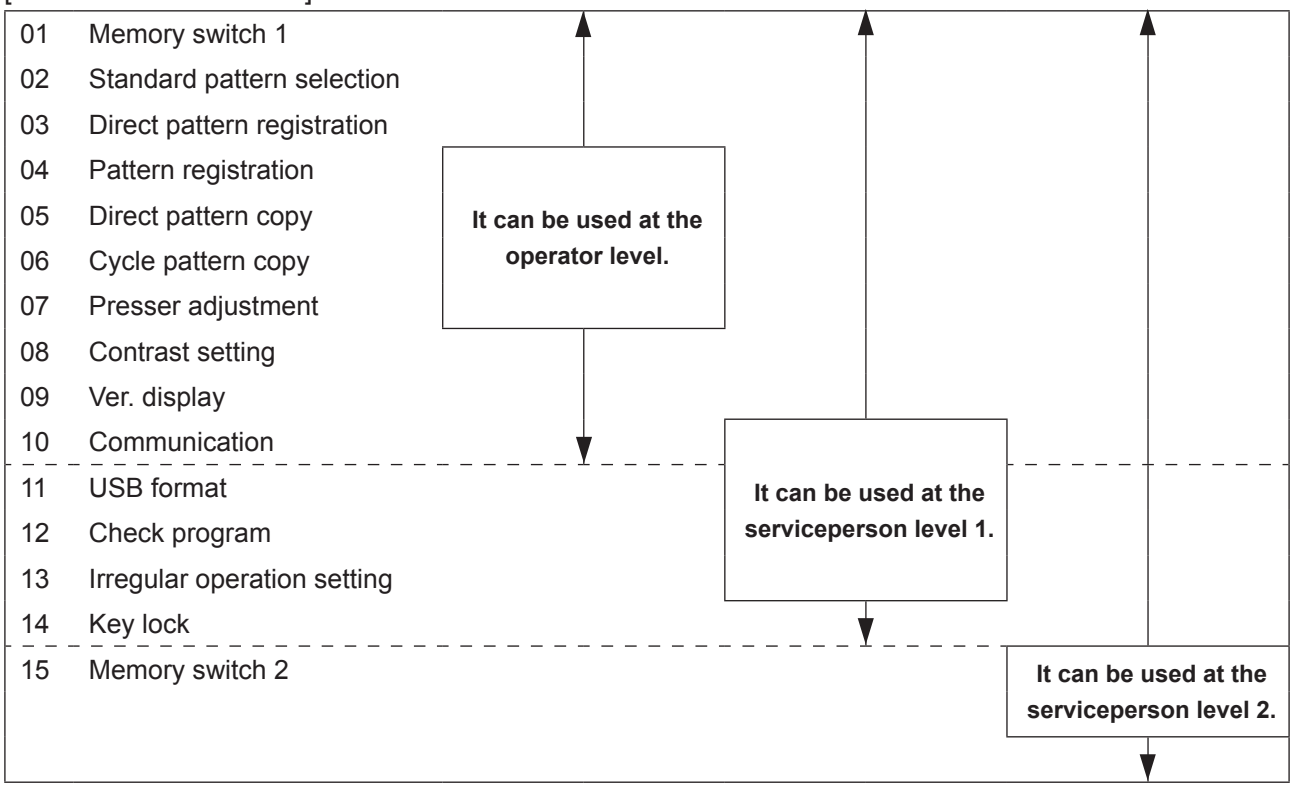
4. Operation panel

(1) To use the functions of the serviceperson level

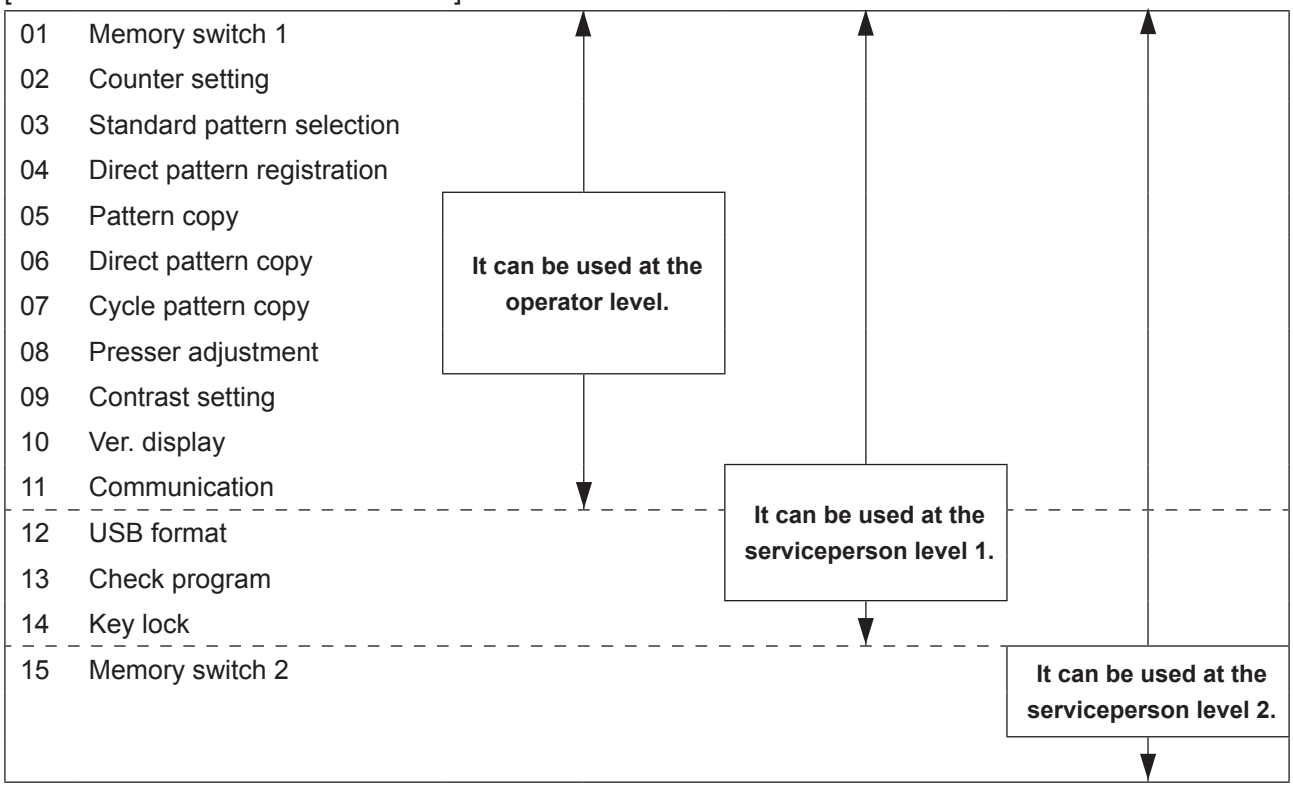
By pressing **M** button on the sewing screen for 3 seconds, a mode screen for the service level 1 will be displayed; for 6 seconds, a mode screen for the service level 2 will be displayed. Pressing ⮌ restores the sewing screen.

The function that can be used differs depending on the levels as follows.

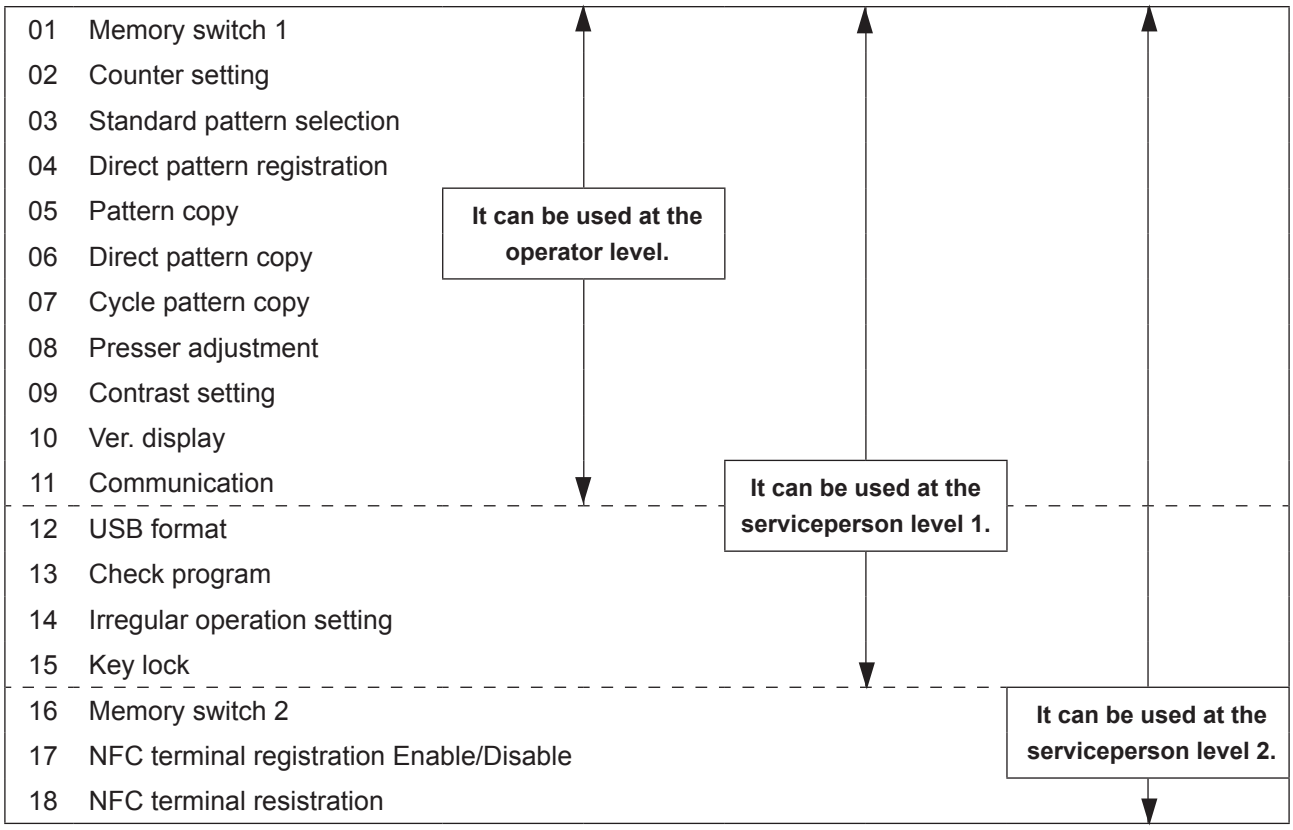
[Mode screen LK-190∗S]



[Mode screen LK-190∗B/LK-190∗BB]

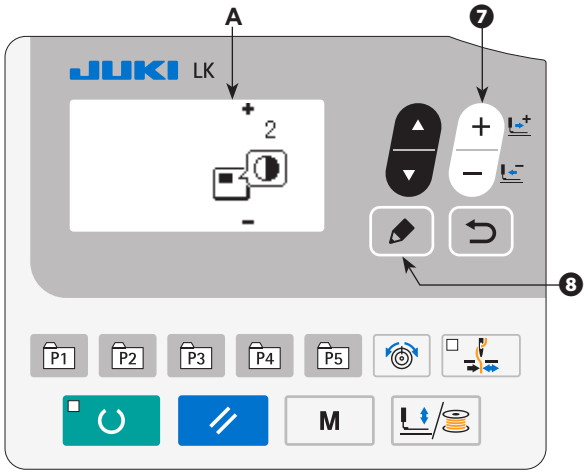


[Mode screen LK-190∗BN/LK-190∗BNP]



(2) Contrast adjustment

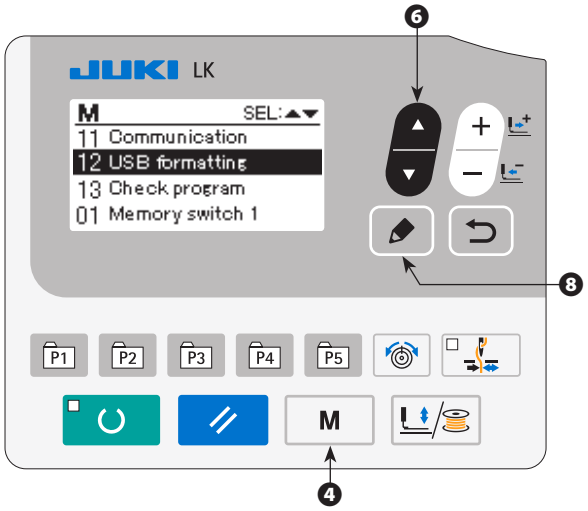
It is possible to adjust the contrast of panel display in 5 steps.



1) Calling the contrast adjustment screen
Select the contrast adjustment from the menu on the mode screen and EDIT key ❽ is pressed, the contrast adjustment screen A is displayed.

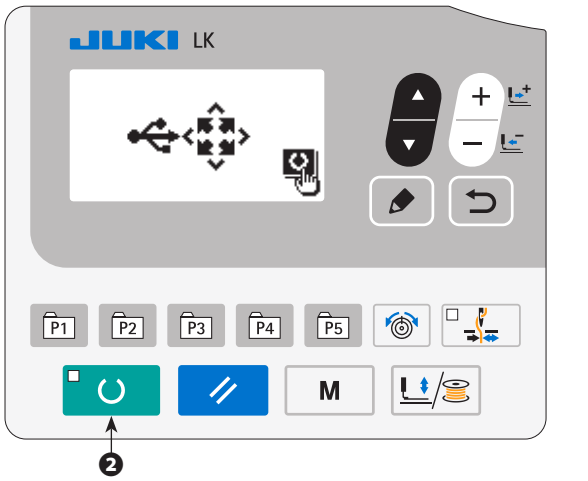
2) Adjusting the contrast
DATA CHANGE key ❼ is pressed, it is possible to adjust the contrast in 5 steps until 4 (darkest) from 0 (brightest).

(3) USB format



1) When MODE key M ❹ is held pressed for 3 seconds, "12 USB formatting" is displayed on the mode screen.

2) Selecting the item
Press ITEM SELECT key ❻ to select "USB formatting", and press EDIT key ❽ .

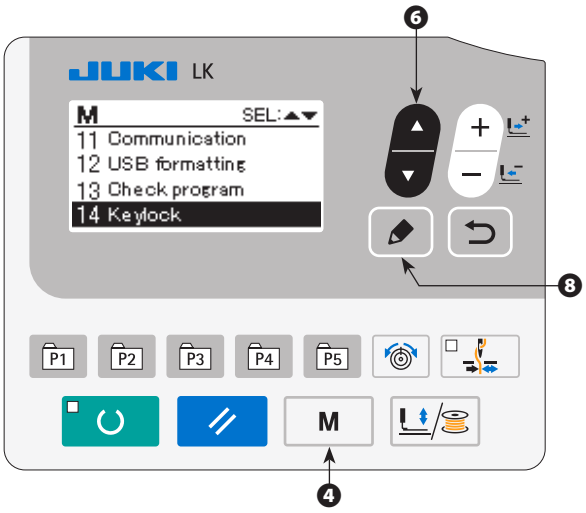


3) Perform the format
Insert the media into the USB thumb drive, press READY key ❷ .
When formatting is complete, return to the mode screen.

(Remarks) The description only uses the panel diagram of the standard specification.

(4) Key look setting

In the case of setting the key-lock function, operation of the key for changing the data can be disabled.



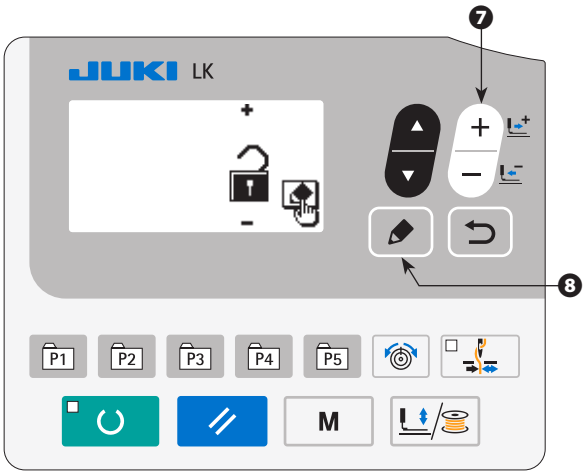
1) Starting the key lock screen

Turn ON the DIPSW1-1 of MAIN board while the power is OFF, and turn ON the power.

When MODE key [M] ❹ is held pressed for 3 seconds, "Key lock" is displayed on the mode screen.

Press ITEM SELECT key ❻ to place "Key lock" in the selected. Then, press EDIT key ❽ to display the key lock function enable/disable screen.

*When the DIPSW1-1 of MAIN board is OFF, "Key lock setting" is not displayed on the mode screen.



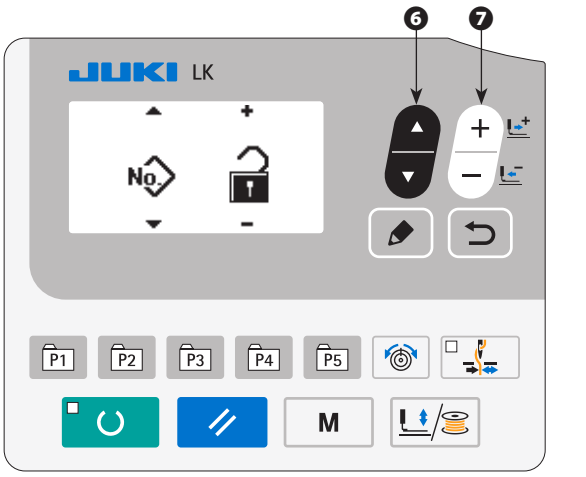
2) Setting the enable/disable of key lock function

Enable/disable of key lock function is selected with DATA CHANGE key ❼.

: Key lock is enabled.

: Key lock is disabled.

When EDIT key ❽ is pressed, selection screen of the item to be key lock is displayed.



3) Selecting the item to be key lock

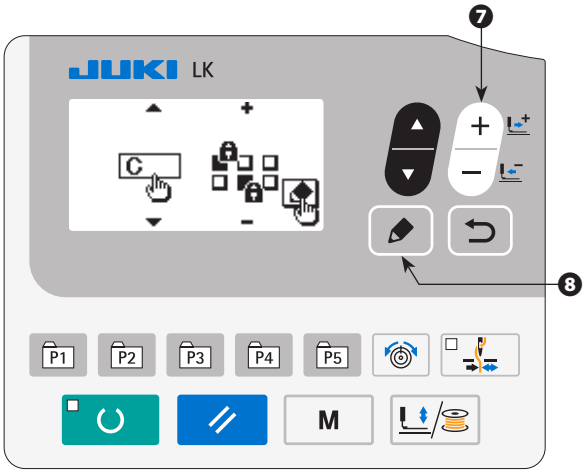
It is possible to change the item to be key lock with ITEM SELECT key ❻ and to change enable/disable of key lock with DATA CHANGE key ❼.

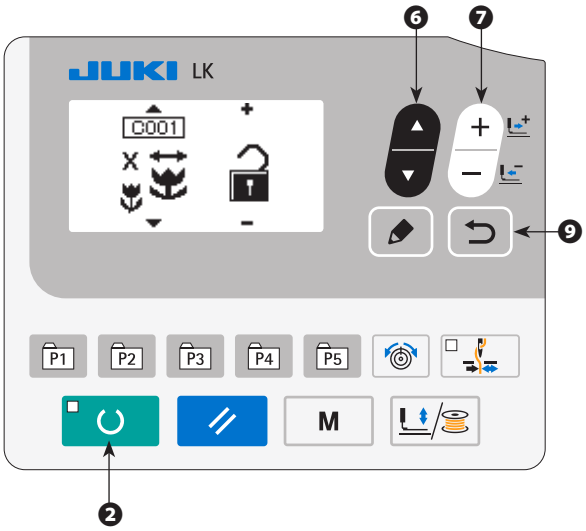
(Remarks) The description only uses the panel diagram of the standard specification.

Items that can be key lock is as follows.

Items that can be the key lock

Display	Items that can be the key lock
	Pattern No.
	Item data (It can be individual setting.)
	Direct pattern data (It can be individual setting.)
	Memory switch 1 (It can be individual setting.)
	Counter
	USB formatting
	Check program
	Used/not-used of standard pattern
	Pattern copy
	Direct pattern copy
	Cycle pattern copy
	Direct pattern registration





(Remarks) The description only uses the panel diagram of the standard specification.

4) Selecting the individual key lock item

Item data, direct pattern data and memory switch data are possible to perform the key lock setting individually for detailed item of each data.

In the case the item data, direct pattern data and memory switch data are selected to be the items for key lock, not only enable/disable of the key-lock function but also "Individual selection of key lock items" can be selected with DATA CHANGE key ❼.

: Individual selection of key lock items

Select "Individual selection of key lock items". When EDIT key ❽ is pressed, individual selection screen is displayed.

Select the item with ITEM SELECT key ❻. It is possible to change enable/disable of key lock with DATA CHANGE key ❼.

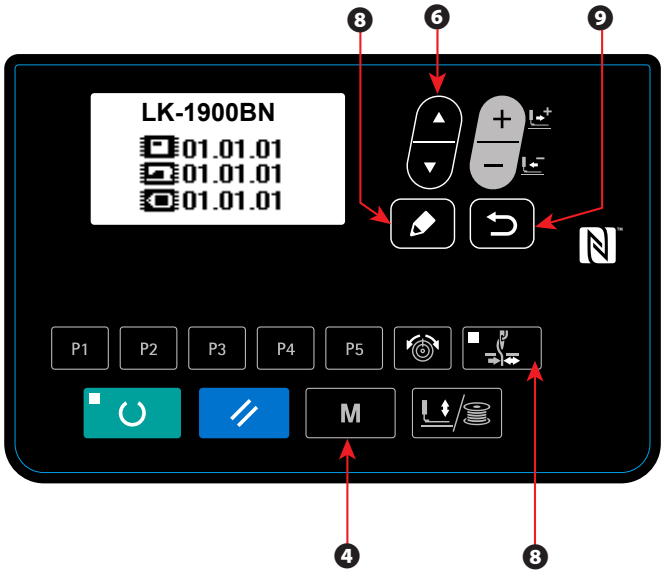
When the setting is complete, press RETURN key ❾ to display the mode screen.

When the setting is complete, press RETURN key

The setting will be applied by pressing the READY key ❷.

Turn OFF the power, and turn OFF the DIPSW1-1 of MAIN board.

(5) How to check the version information



1) Check the version

Each software version of panel, sewing machine and SDC board can be confirmed.

1. Display the version screen

Press M ❹ to display the mode screen.

Press the item selection key ❻ to select “06 Version display”.

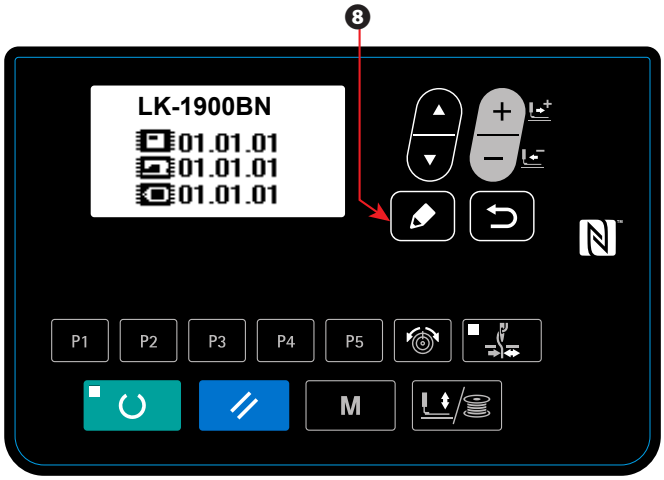
Press the edit key ❽ to display the version information screen.

When RETURN key ❾ is pressed, the screen returns to the mode screen.

Display	Description
01.01.01	Version of panel software
01.01.01	Version of sewing machine software
01.01.01	Version of SDC board software

(Supplement) Press the thread clamp key while the version is displayed. The initial serial No. of the main board will be displayed.

* For LK-1900S series, press the function key.



2) Edit the machine name (LK-1900BN series only)

It is necessary to assign names or numbers to each machine to identify them in order to use functions of JUKI Smart App.

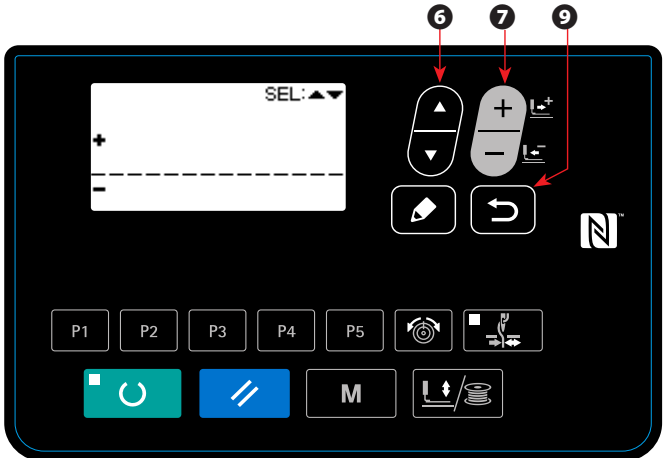
1. Check the name of the sewing machine

The name of the sewing machine can be checked on the sewing machine name input screen that will be displayed when the EDIT key ❽ on the version data screen is held down for 1 second.

2. Edit the name of the sewing machine

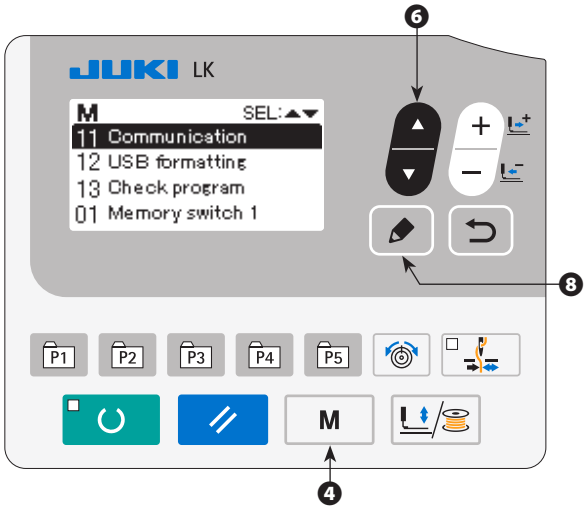
The font type can be selected using the DATA CHANGE key ❼ and the input position can be selected using the item selection key ❻ respectively.

Pressing the RETURN key ❾ will determine the name of the sewing machine and the version data screen will be displayed.



(6) How to use the communication function

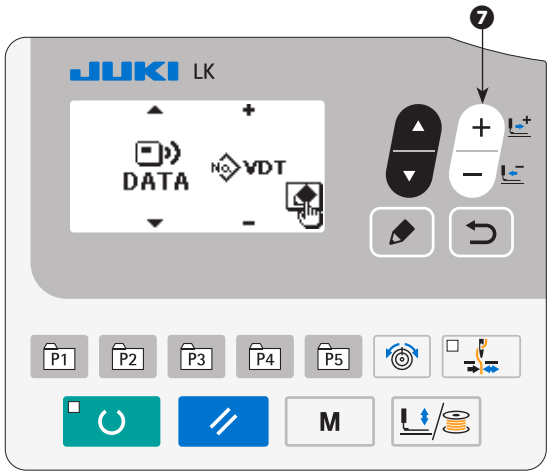
This sewing machine is capable of inputting/outputting data by means of an USB thumb drive.



1) Entering the communication mode

MODE key [M] ❹ is held pressed for 3 seconds to display the mode screen. Display "Communication" in reverse video with ITEM SELECT key ❻.

Then, press EDIT key ❽.



2) Selecting the type of communication

Press DATA CHANGE key ❼ to select the type of communication.

Data that can be selected is as follows.

(Remarks) The description only uses the panel diagram of the standard specification.

Table 1. Types of data that can be handled

Data name	Display	File name	Description of data
Vector form data	VDT	VD00 XXX .VDT	Data on needle entry points created with the PM-1. The data form is commonly used among JUKI sewing machine.
Memory switch data *		LK00 XXX .MSW	Memory switch (Level 1/Level 2) data
All sewing machine data *	DATA	LK00XXX .MSP	All data maintained by the sewing machine
Panel program data *		SP RVL(6 digits).HED SP RVL(6 digits).P00	Panel program data
Main program data *		MA RVL(6 digits).PRG	Main program data
Servo program data *		MT RVL(6 digits).PRG	Servo program data

XXX : No.001 to 999, which is displayed on the panel.

* It will be displayed in the case of “Service level 1”. It will not be displayed in the operator level.

Data of all sewing machine data that can be output is different from the ones that can be written.
The memory switch data of all sewing machine data can be written except K241.

Table 2. All sewing machine data

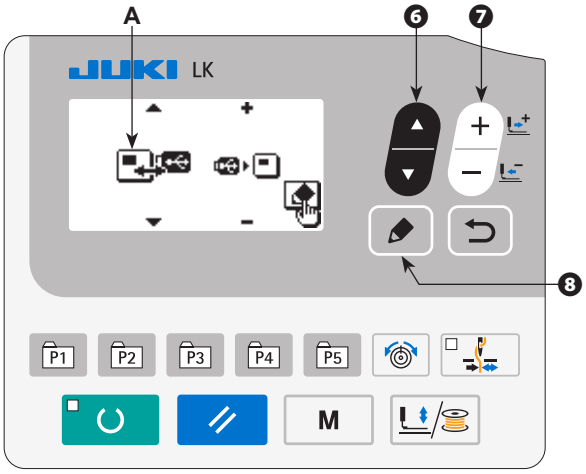
No.	Items		Setting field	Export	Write	Remarks
1	Pattern backup data		Available	Allowed	Allowed	Standard/ User/ Settings displayed on the media pattern (Pno, etc.) No.2 and No.3 are the data of same screen and have different content.
2	Panel setting data		Available	Allowed	Allowed	Standard/ User/ Settings displayed on the media pattern (Sewing mode, etc.) No.2 and No.3 are the data of same screen and have different content.
3	Pattern common data	X scale	Available	Allowed	Allowed	Standard/ User/ Settings displayed on the media pattern No.2 and No.3 are the data of same screen and have different content.
		Y scale	Available	Allowed	Allowed	
		Sewing speed	Available	Allowed	Allowed	
		X actual size	Available	Allowed	Allowed	
		Y actual size	Available	Allowed	Allowed	
4	Counter data	Counter selection	Available	Allowed	Allowed	Counter selection (Sewing up/down, number of sewing up/down, bobbin thread up/down, disabled) Mode 02 (LK-1900B series, LK-1900BN series)
		Current count	Available	Allowed	Allowed	
		Counter set value	Available	Allowed	Allowed	
5	Keylock information	Key lock function selection With/without	Available	Allowed	Allowed	Mode 15 (Mode 14)
		Pattern No. key lock With/without	Available	Allowed	Allowed	
		Item data key lock With/without	Available	Allowed	Allowed	Standard/ User/ Media pattern item data key lock information
		Item data key lock 2 Enable/Disable	Available	Allowed	Allowed	Direct pattern item data key lock information
		Direct pattern key lock With/without	Available	Allowed	Allowed	
		Memory switch key lock With/without	Available	Allowed	Allowed	
		Counter key lock With/without	Available	Allowed	Allowed	* LK-1900B series, LK-1900BN series
		USB format key lock With/without	Available	Allowed	Allowed	
		Check program key lock With/without	Available	Allowed	Allowed	
		Standard pattern key lock With/without	Available	Allowed	Allowed	
		Pattern copy key lock With/without	Available	Allowed	Allowed	
		Direct pattern copy key lock With/without	Available	Allowed	Allowed	
		Cycle pattern key lock With/without	Available	Allowed	Allowed	
		Direct pattern registration key lock With/without	Available	Allowed	Allowed	
		Key lock per item data	Available	Allowed	Allowed	Standard/ User/ Key lock information per media item data
		Key lock per item data 2	Available	Allowed	Allowed	Direct pattern item data key lock information
		Key lock data per direct pattern	Available	Allowed	Allowed	
		Key lock data per memory switch	Available	Allowed	Allowed	
6	Memory switch (Lv.1) data		Available	Allowed	Allowed	Saves in the MAIN board. Mode 01
7	Memory switch (Lv.2) data		Available	Allowed	Allowed	[K241] will be saved in the INT board. Output and writing are disabled. Other memory switch (Lv.2) data will be saved in the MAIN board. Mode 16 (Mode 15)
8	Data of standard pattern using/not using		Available	Allowed	Allowed	Mode 03 (Mode 02)
9	User pattern data		Available	Allowed	Allowed	Registered direct pattern data (up to 200)

No.	Items		Setting field	Export	Write	Remarks
10	**Direct pattern registration data** (No1 to 25 patterns can be read out in the combination of P1 to P5 keys.)		Available	Allowed	Allowed	Registered data in No.1 to No.50 Mode 04 (Mode 03) & Panel P1 to P5
11	Cycle pattern registered data		Available	Allowed	Allowed	Registered data in No.1 to No.99
12	Data of standard pattern names		Available	Allowed	Allowed	No1 to 51
13	Data of serial No. of the main board		N/A	Allowed	Not allowed	Press the thread clamp key on the version display screen (LK-1900B series). Press the “i” key on the version display screen (LK-1900S series).
14	F key registration information		Available	Allowed	Allowed	Data registered in F keys on the operation panel * Only the LK-1900S series
15	Maintenance data	Cumulative operating time	N/A	Allowed	Not allowed	
		Cumulative energizing time	N/A			
		Cumulative stitch (thread trimming) count	N/A			
		Cumulative stitch count	N/A			
		Error list (error history)	N/A			
16	Problem - solving graph data (Panel display data)		N/A	Allowed	Allowed	★ Checking is available via smart application. • Irregular operation time * Only LK-190*BN*
17	Problem - solving graph data		N/A	Allowed	Not allowed	★ Checking is available via smart application. • Date and time when power is turned on • Date and time when power is turned off • Settings between the dates and times above (from power ON to OFF) • Number of stitches (unit: 10 stitches) • Time of rotation (sec.) • Number of Sewing • Number of times of thread trimming * Only LK-190*BN*
18	NFC registration information	NFC terminal registration Enable/ Disable	Available	Allowed	Not allowed	Mode 17 * Only LK-190*BN*
		NFC terminal registration	Available			Mode18 * Only LK-190*BN*

Even if the data is backed up in the all sewing machine data, there are some data that cannot be restored in the all sewing machine data writing.

Table 3 Check program (Mode 07)

No.	Items	Setting field	Export	Write	Remarks
1	Input signal check	–	Not allowed	Not allowed	
2	X/Y motor origin adjustment	Available	Not allowed	Not allowed	LK-1900B series, Lk-1900BN series: data is saved by the motor.
3		N/A	Not allowed	Not allowed	LK-1900S Series
4	Continuous operation	–	Not allowed	Not allowed	
5	Main motor rpm check	–	Not allowed	Not allowed	
6	Output check	–	Not allowed	Not allowed	
7	Presser thread trimming motor origin adjustment	N/A	Not allowed	Not allowed	
8	Needle thread clamp motor origin adjustment	Available	Not allowed	Not allowed	Only the BB/BNB Type : data is saved by the motor.
9	Bird’s nest short tail step mode	–	Not allowed	Not allowed	Only the BB/BNB Type



3) Selecting the communication direction

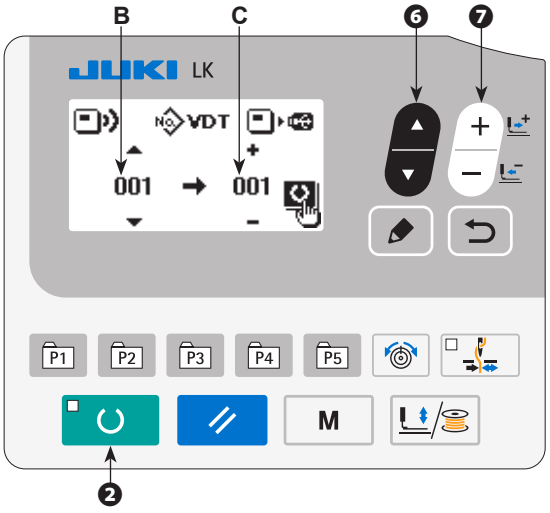
Press ITEM SELECT key ❻ to display pictograph **A** which shows the communication direction selection.

Press DATA CHANGE key ❼ to select the communication direction.

Communication direction that can be selected are as follows.

Display	Communication direction
	Data shown on the operation panel is written on the USB thumb drive.
	Data stored on the USB thumb drive is read into the operation panel. (If you have selected a program data, you can select only this direction.)

Press EDIT key ❽ to select the type of communication and the communication direction, change over to the file number selecting screen.



4) Selecting the number

Press ITEM SELECT key ❻ to select file number **B** to be read.

Press DATA CHANGE key ❼ to select file number **C** to be written.

Press READY key ❷ to write the data.

[In the case that the type of communication is vector form data or memory switch data.]

When READY key ❷ is pressed, an hourglass is displayed.

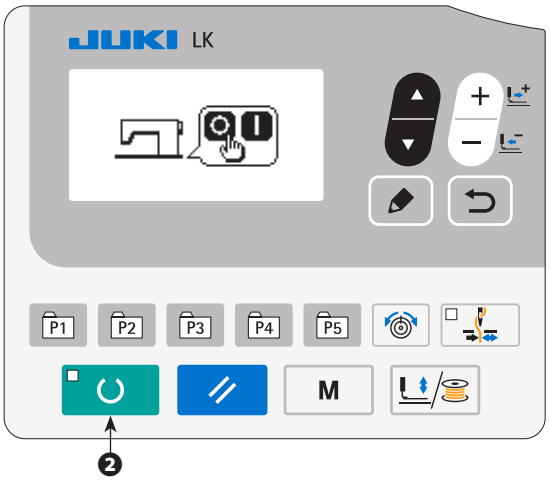
When data writing is completed, return to the file number selecting screen.

[In the case that the type of communication is all sewing machine data.]

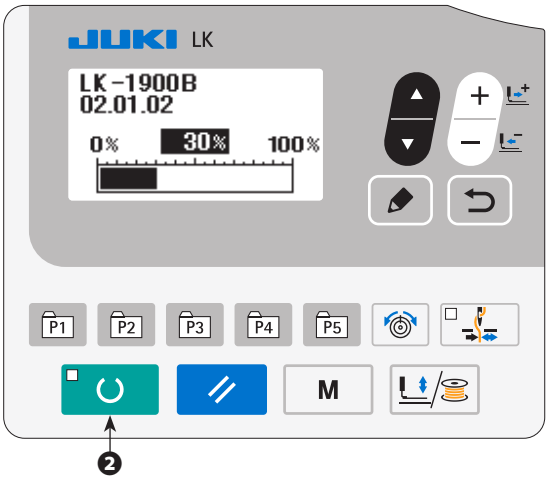
When READY key ❷ is pressed, an hourglass is displayed.

When the data is written to the panel from the USB thumb drive, turn OFF the power when writing data is completed. When turning ON the power again, the written data is reflected.

In addition, when data is written to the USB thumb drive from the panel, return to the file number selecting screen when writing data is completed.



(Remarks) The description only uses the panel diagram of the standard specification.

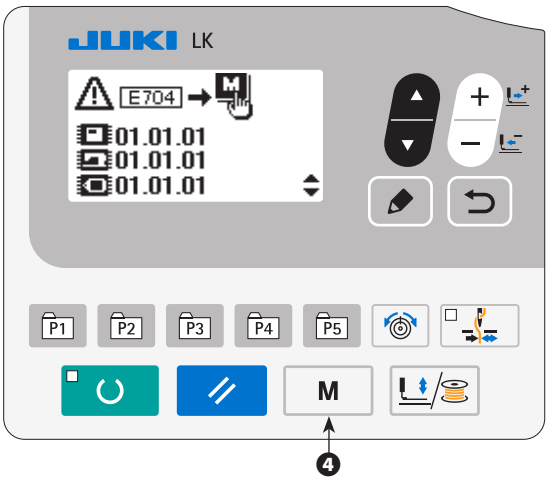


[In the case that the type of communication is program data.]

When READY key ❷ is pressed, progress of rewriting is displayed.

When rewriting of data is completed, turn OFF the power.

When turning ON the power again, program after rewriting is performed.



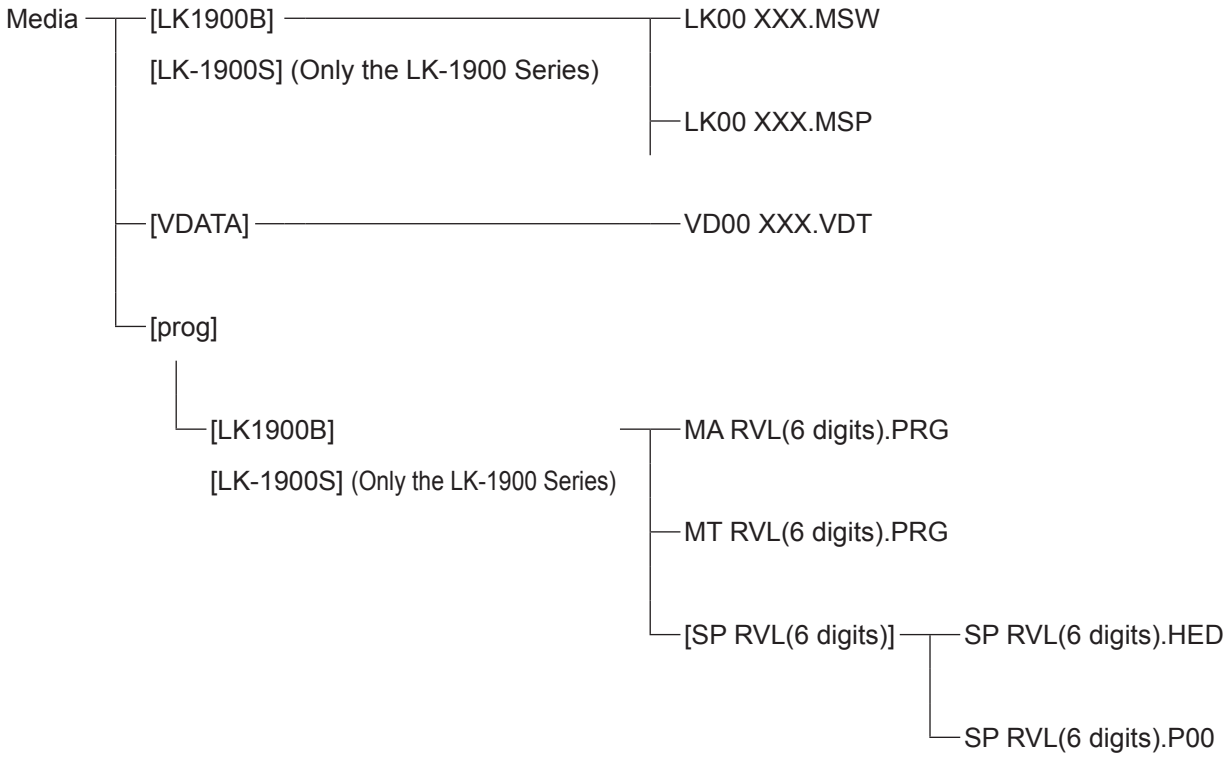
5) In the case that E704 version error has occurred

If each version of main program and panel program and servo program is not compatible, version error screen is displayed immediately after turning ON the power.

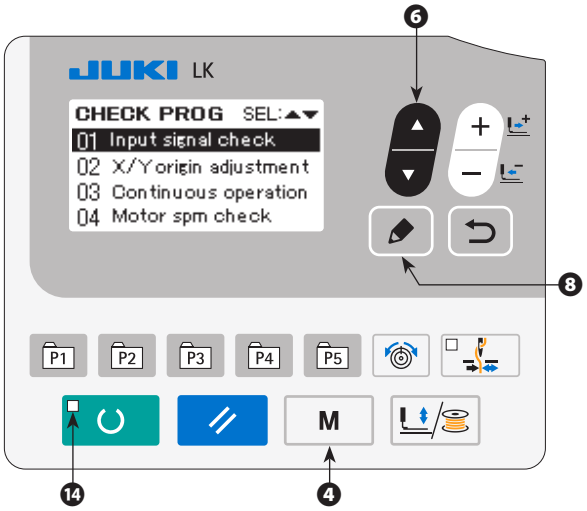
When MODE key M ❹ is pressed in E704 version error screen, change over to communication mode. Then, it is possible to rewrite the program.

(Remarks) The description only uses the panel diagram of the standard specification.

When saving the data to the media, save it in a directory configuration described below.
If the data is not saved to the correct folder, file loading can not be performed.
* […] : Folder name



(7) Check program



(Remarks) The description only uses the panel diagram of the standard specification.

1) Starting the Check program

① How to select the check items

When MODE key [M] ❹ is held pressed for 3 seconds in the state that SET READY LED ⓮ goes out, buzzer will sound and "Check program" is displayed on the mode screen.

② Selecting the function of check program

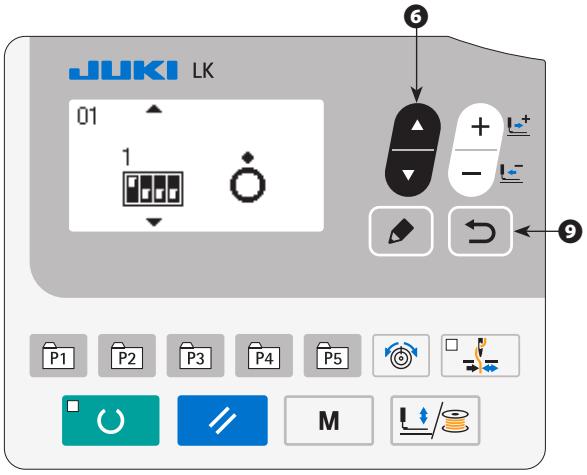
Press ITEM SELECT key ❻ in the state of the check program screen. Press EDIT key ❽ in the state that the function to be used is in reverse video, it is possible to use the selected function.

Check item is 7 items described below.

No.	Item name	Remrks
01	Input signal check	
02	X/Y motor origin adjustment	
03	Continuous operation	When using other than BR35
04	Main motor rpm check	
05	Output check	
06	Work clamp foot/thread trimming motor origin adjustment	
07	Needle thread clamp motor origin adjustment	LK-1900B Series, LK-1900BN Series
08	Bird's nest short tail step mode	Only the LK-1900B∗B, 1903B∗B

2) Input signal check

It is possible to check the input conditions of the pedal switches and various sensors etc.



(Remarks) The description only uses the panel diagram of the standard specification.

① Selecting the sensor item

Press ITEM SELECT key ❻ to select the sensor to perform the confirmation. (Sensor items that are displayed on the left side of screen is changed over.)

Sensor that can be confirmed are as follows.

In addition, the display screen of right half will change as follows by ON / OFF of the sensor.

State of sensor	Display
Sensor ON	
Sensor OFF	

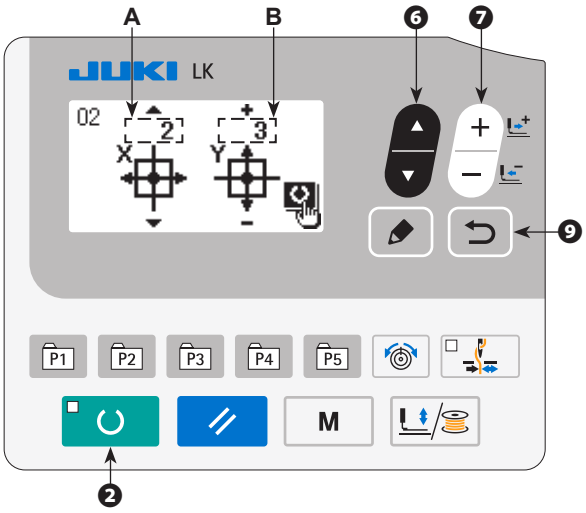
② When RETURN key ❾ is pressed, the screen returns to the check program screen.

No.	Sensor name	Display	No.	Sensor name	Display	No.	Sensor name	Display
01	DIP switch 1		08	Analog pedal sensor		15	SDET sensor	
02	DIP switch 2		09	AUDET sensor		16	Head tilt switch	
03	DIP switch 3		10	ADDET sensor		17	Temporary stop switch	
04	DIP switch 4		11	DDET sensor		18	Thread breakage detection switch	
05	Start switch (pedal)		12	UDET sensor		19	Sewing machine needle bar angle (0 to 359)	
06	Work clamp foot 1 switch (pedal)		13	TG sensor		20	Suction nozzle (LK-1900B Series, LK-1900BN Series)	
07	Work clamp foot 2 switch (pedal)		14	PDET sensor		21	Shorter thread remaining thread trimmer cylinder switch (LK-1900B Series, LK-1900BN Series)	

3) X/Y motor origin adjustment

Inching operation of X/Y motor, origin retrieval operation, and Positioning of X/Y encoder are performed.

[1] LK-1900B Series, LK-1900BN Series



(Remarks) The description only uses the panel diagram of the standard specification.

① When ITEM SELECT key ❻ is pressed,

X-motor is driven in 0.1 mm steps.
Position information of the X-motor encoder is displayed in section **A**.

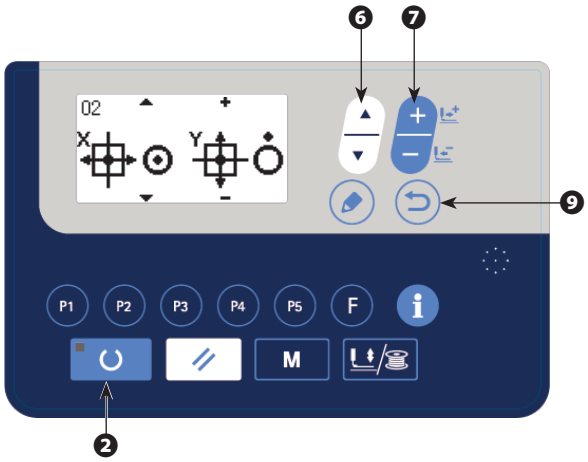
When DATA CHANGE key ❼ is pressed,

Y-motor is driven in 0.1 mm steps.
Position information of the Y-motor encoder is displayed in section **B**.

When READY key ❷ is held pressed for 2 seconds, the motor position of current state will be X/Y origin and position information of the X/Y motor will be "0".
Perform the origin retrieval of X/Y motor by start switch.

② When RETURN key ❾ is pressed, the screen returns to the check program screen.

[2] LK-1900S Series



(Ref) When ITEM SELECT key ❻ is pressed,

X-motor is driven in 0.1 mm steps.

When DATA CHANGE key ❼ is pressed,

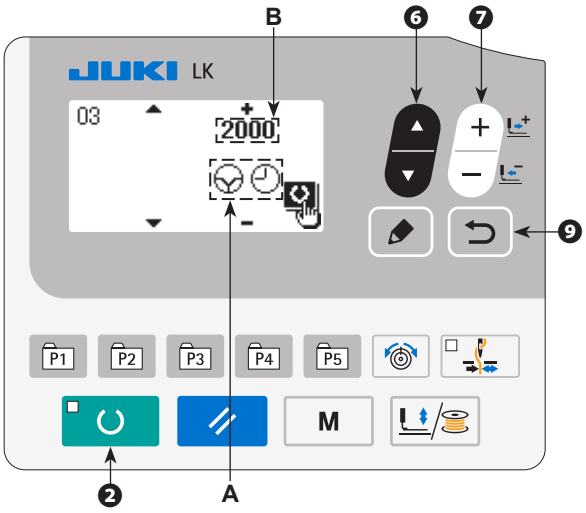
Y-motor is driven in 0.1 mm steps.

① Check the assembled position of the origin sensor by executing the X/Y origin search with the start switch.
It is also used in the check after the origin sensor is assembled

② When RETURN key ❾ is pressed, the screen returns to the check program screen.
For details, refer to “3.-(23) Adjustment of the Y origin” and “3.-(24) Adjustment of the X origin”.

4) Continuous operation

After the setting of continuous operation, the condition moves to the continuous operation mode.
Turn OFF the power to close the continuous operation mode.



(Remarks) The description only uses the panel diagram of the standard specification.

① Press READY key ❷ to bring the aging in the enabled state. Then, display the check program screen.

Press ITEM SELECT key ❻ to select the setting item.
Setting item is displayed in section **A**.

Press DATA CHANGE key ❼ to enter a value of setting item that is selected.
Setting value is displayed in section **B**.

② Select the pattern No. that will perform the continuous operation, change over to the sewing screen. Turn ON the start switch, start the continuous operation.
After the completion of sewing, origin retrieval of the X/Y/work clamp foot/thread trimmer/needle thread clamp motor is conducted if "origin retrieval enabled" has been set. In this case, automatic sewing operation is restarted after the lapse of the rest time specified.
To stop continuous operation, turn ON the Start SW during the rest time. "E050 Temporary stop error" is displayed and operation is suspended.

Setting items are as follows.

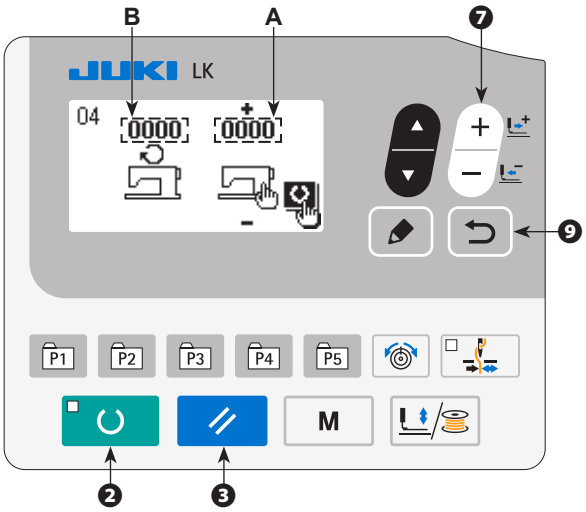
③ When RETURN key ❾ is pressed, the screen returns to the check program screen.

Setting items

No.	Setting items	Pictogram	Setting items
1	Rest time		0 to 9900 ms (Initial value : 2000 ms)
2	Origin retrieval enable/disable setting at the end of sewing		0 : Disable (Initial value) 1 : Every 100 sewing cycles 2 : Every sewing cycle

5) Main motor rpm check

Used to set up the sewing machine rpm number. Only the main motor is driven at the preset rpm number and the actually measured rpm number is displayed.



(Remarks) The description only uses the panel diagram of the standard specification.

① Press DATA CHANGE key ❼ to enter the preset rpm number.
The preset rpm number is displayed in section **A**.

② The sewing machine motor begins to run at the preset rpm number.
The actually measured rpm number is displayed in section **B**.
If the preset rpm number is changed on sewing machine operation, the preset rpm number is possible to be updated by pressing READY key ❷.

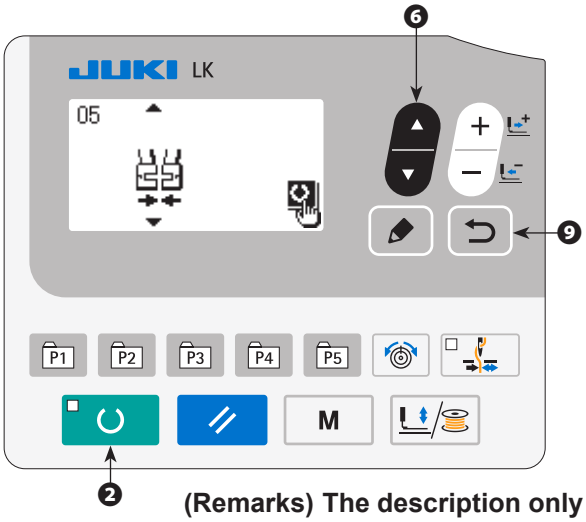
③ When RESET key ❸ is pressed, sewing machine operation stops.

④ When RETURN key ❾ is pressed, the screen returns to the check program screen.

6) Output check

[1] LK-1900B Series, Lk-1900BN Series

Output check is carried out for the material drawing magnet of the LK-1901B.



(Remarks) The description only uses the panel diagram of the standard specification.

① Press ITEM SELECT key ❻ to select the setting item.

② While READY key ❷ is pressed, the material drawing magnet ON output is generated.

Setting items are as follows.

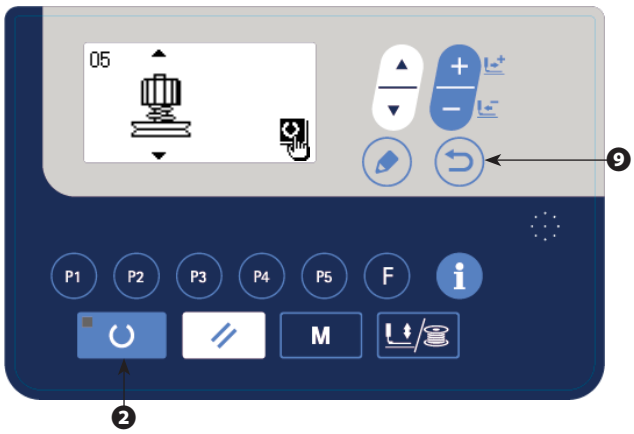
③ When RETURN key ❾ is pressed, the screen returns to the check program screen.

Setting items

No.	Input content	Pictogram	No.	Input content	Pictogram	No.	Input content	Pictogram
01	1901 material drawing		04	Air output 1	1	07	Thread waste suction	
02	Movement enabled for BR35		05	Air output 2	2			
03	During sewing for BR35		06	Solenoid valve reserve	SV			

[2] LK-1900S series

Perform the output check of the disk rise solenoid.



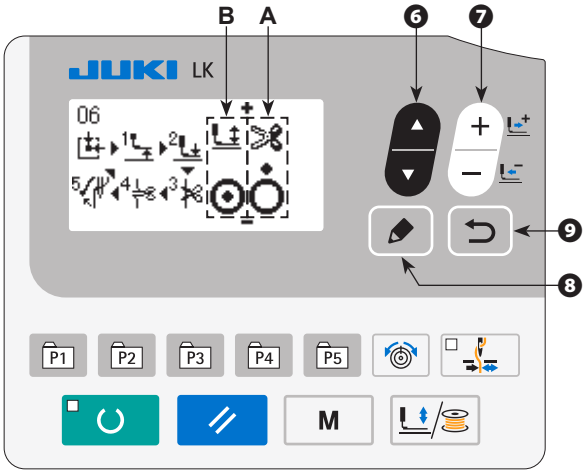
① Output the disk rise solenoid ON while the READY key ❷ is being pressed.

② When the RETURN key ❾ is pressed, the screen will go back to the check program screen.

(Note) If the disk rise operation is aggressively repeated, it may cause errors.

7) Work clamp foot/thread trimming motor origin adjustment

Inching operation of the work clamp foot/thread trimming motor, operation of origin retrieval, and the status of work clamp foot origin sensor and thread trimming sensor are displayed.



(Remarks) The description only uses the panel diagram of the standard specification.

①Carry out origin retrieval of work clamp foot/thread trimming motor by the start switch.

②When DATA CHANGE key ❼ is pressed, the work clamp foot/thread trimming motor are driven in the directions of +/- for each pulse.

or is displayed in section **A** according to the status of thread trimming sensor.

or is displayed in section **B** according to the status of work clamp foot origin sensor.

③Press EDIT key ❽ to drive the work clamp foot/thread trimming motor to each specified position.

When ITEM SELECT key ❻ is pressed, the driving direction of work clamp foot/thread trimming motor to each specified position is changed. (The arrow mark that is displaying the motor position will change in the reverse direction.)

① Work clamp foot rising position
② Work clamp foot lowering position (lowering position during pedal operation)
③ Thread trimming position
④ Work clamp foot lowering position (lowering position after thread trimming)
⑤ Wipe-out position

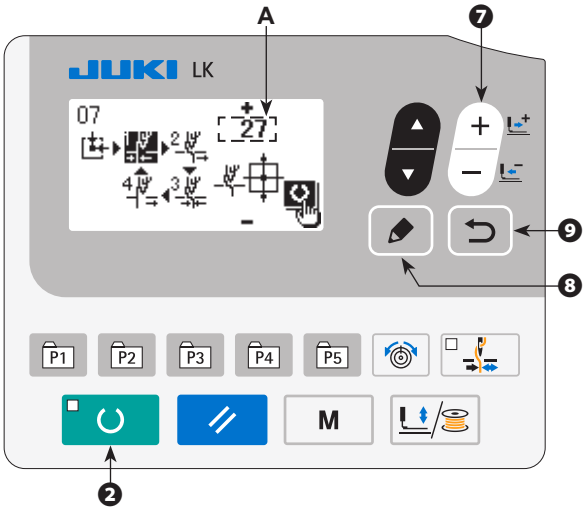
(Note) This feature is available after the completion of origin retrieval of the work clamp foot/thread trimming motor with the start switch.

④When RETURN key ❾ is pressed, the screen returns to the check program screen.

For details, refer to "3.-(12) Thread trimmer cam position adjustment and connection/disconnection" and "3.-(14) Adjustment of the thread trimmer sensor.

8) Needle thread clamp motor origin adjustment

Inching operation of the needle thread clamp motor, operation of origin retrieval, and the status of needle thread clamp encoder are displayed, and origin retrieval of the needle thread clamp motor is carried out.



(Remarks) The description only uses the panel diagram of the standard specification.

① When DATA CHANGE key  ❼ is pressed, the needle thread clamp motor is driven in the directions of +/- for each pulse.
Position information of the needle thread clamp encoder is displayed in section **A**.

② Press EDIT key  ❽ to drive the needle thread clamp to each specified position.

① Standby position (front side)
② Needle thread bending position
③ Needle thread clamp position
④ Refuge position (rear side)

When READY key  ❷ is held pressed for 2 seconds, the motor position of current state will be needle thread clamp origin.
Setting of the origin position is complete, "27" is displayed on the screen.

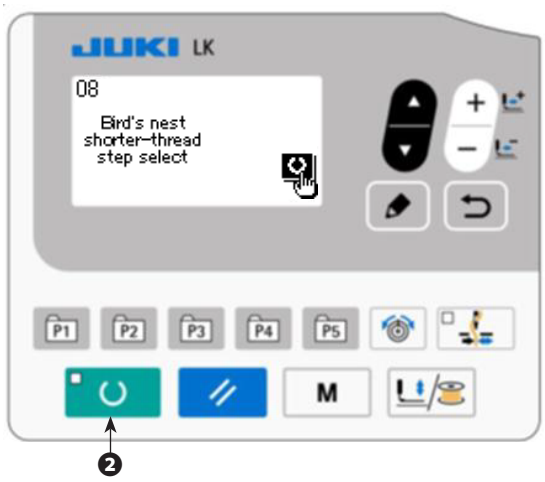
(Note) This feature is available after the completion of origin retrieval of the needle thread clamp motor with the start switch.

③ When RETURN key  ❾ is pressed, the screen returns to the check program screen.

For details, refer to "3.-(37) Adjustment of the needle thread clamp reference position".

9) Bird's nest short tail step mode

A series of action of bird's nest short tail function can be checked by the step motion.



(Remarks) The description only uses the panel diagram of the standard specification.

① Pressing the READY key  ❷ will change the bird's nest short tail function to the step mode.

② Restore the sewing screen and press the READY key  ❷ .

③ Tread on the pedal to sew.
Sew→Thread trim→Stops before the bird's nest short tail action.

④ Press the READY key  ❷ .
Pressing the READY key  ❷ will cause actions in the following order.

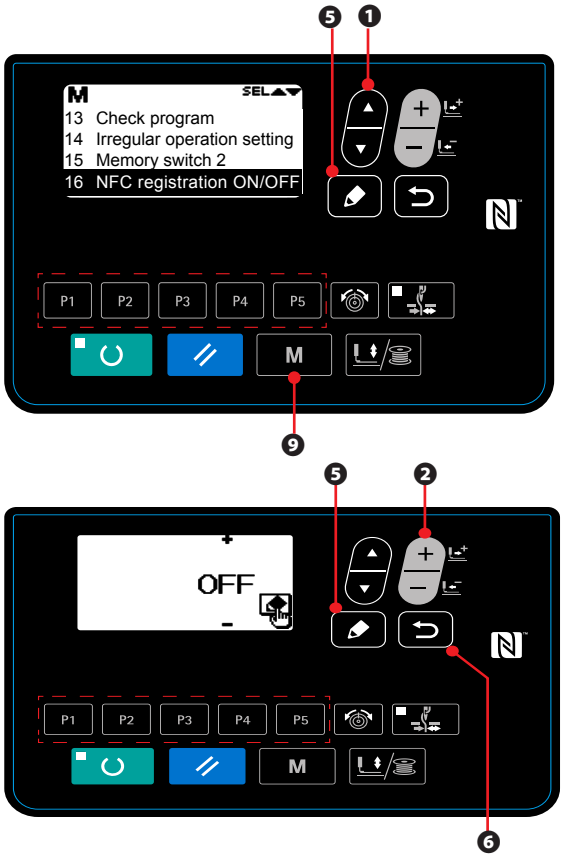
(1) Suction nozzle is turned ON
↓
(2) Shorter-thread remaining thread trimmer is turned ON
↓
(3) Shorter-thread remaining thread trimmer is turned OFF
↓
(4) Suction nozzle is turned OFF
↓
(5) Presser foot goes up

⑤ Pressing the main power off will exit from the "Step mode".

(8) Registering an NFC terminal

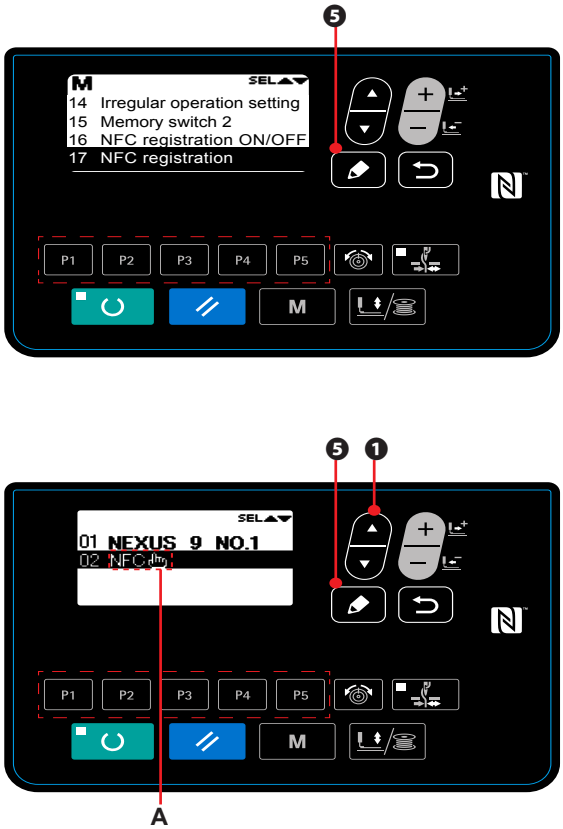
You can put restrictions so that only a registered NFC terminal can use the NFC function.

① Selecting the Enabled or Disabled state of a restriction in using an NFC terminal



1. Hold down the **M** ❾ for 6 seconds on the sewing screen to display the serviceperson level 2 mode screen.
2. Press the ▲ ▼ ❶ to select "16. NFC registration ON/OFF," and press the ✎ ❺ to display the selection screen for the Enabled or Disabled restriction of an NFC terminal.
3. After pressing the + − ❷, you can change the state of Enabled (ON) or Disabled (OFF) of a restriction.
4. Press the ✎ ❺ to fix the settings, and press the ↩ ❻ to cancel it and then the current screen returns to the last (first previous) screen.

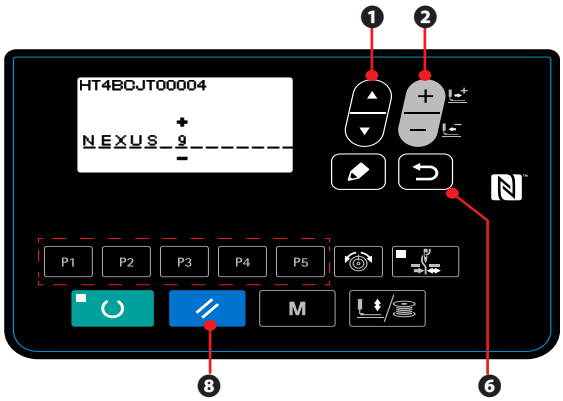
② Registering an NFC terminal



1. Select the "17. NFC registration" on the screen for a maintenance engineer or the serviceperson level 2 mode screen, and press the ✎ ❺ to display the NFC terminal registration screen.
2. Press the ▲ ▼ ❶ to select the NFC terminal new registration pictogram **A**, and press the ✎ ❺ to display the NFC guide message screen.

3. Move an NFC terminal to register close to a panel.
   When you succeed in communication, the input request screen for an NFC terminal registered name is displayed.

4. Press the ❻ to display the edit screen for an NFC registered name.



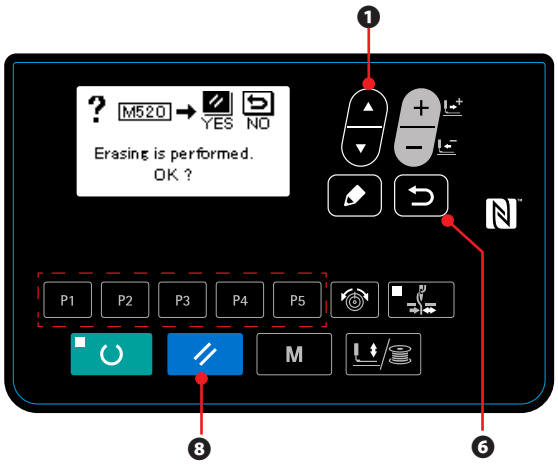
5. Repeat the following operations to enter a registered name.
   - ○ After pressing the ❶, you can select a character.
     (+ – is displayed at the top and bottom of the character in the selection process.)
   - ○ After pressing the ❷, you can change a character in the selection process.
   - ○ Press the ❽ to delete a character in the selection process, and hold it down for 1 second to delete all characters.
6. Press the ❻ after entry to display the NFC terminal registration screen.

(Note) When you try to register a registered NFC terminal once again, the NFC terminal registered message screen is displayed, so press the ❻ to return the current screen to the NFC terminal registration screen.

③ Changing the registered name of an NFC terminal

1. Press the ❶ on the NFC terminal registration screen to select the registered name of an NFC terminal to change, and press the ❺ to display the NFC registration name edit screen.
   For an operating method, refer to 4.-(8)- ② - 5.

④ Canceling the registration of a NFC terminal



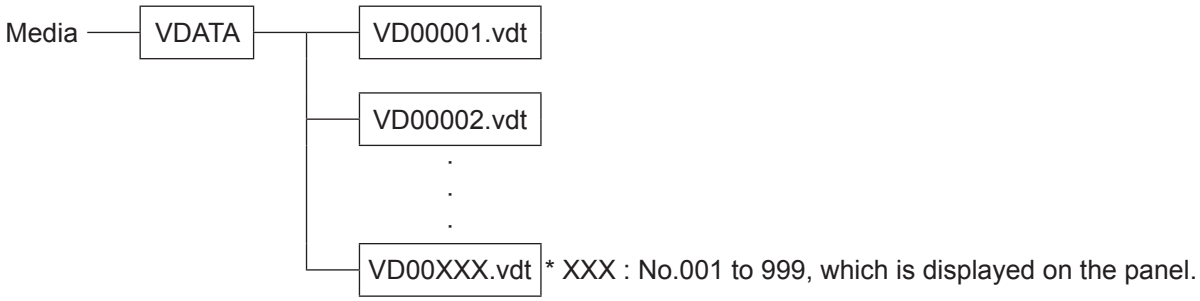
1. Press the ❶ on the NFC terminal registration screen to select the registered name of an NFC terminal to cancel.
2. Press the ❽ to display the confirmation message screen for an NFC terminal registration cancelation.
3. Press the ❽ to execute the cancelation, and press the ❻ to cancel it and then the current screen returns to the last (first previous) screen.

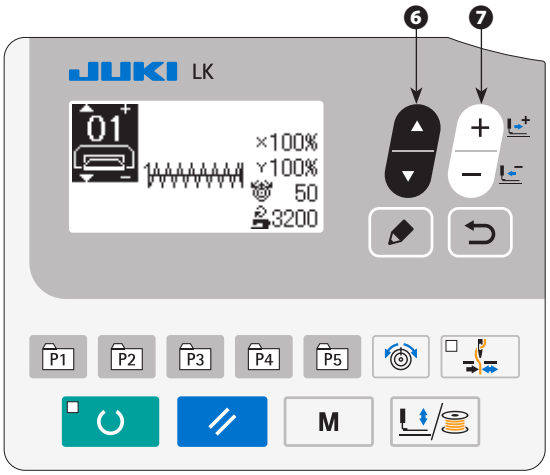
(9) Pattern selection from the USB thumb drive

It is possible to be sewing by selecting the vector data stored in the media that is connected to the USB thumb drive.

In addition, the pattern that is sewn can be backed up to sewing machine body until it is changed to other patterns.

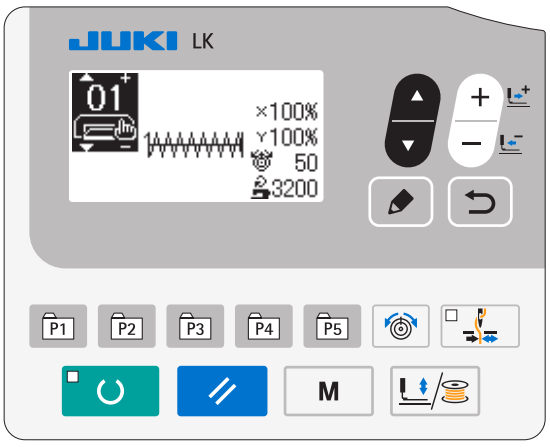
Save the vector data to the media at the directory structure below.



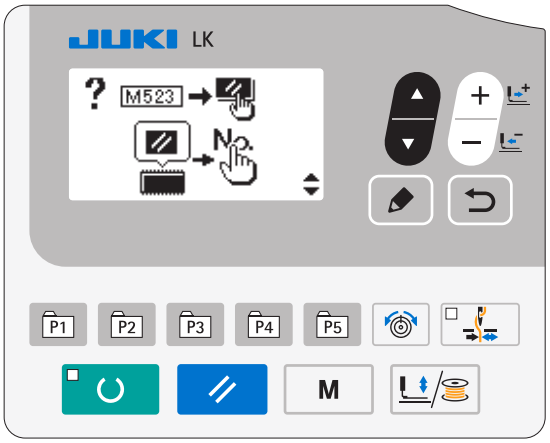


1. Connect the media to the USB thumb drive. Press ITEM SELECT key ❻ a few times, pictogram of USB will be displayed.
   In this state, DATA CHANGE key ❼ is pressed, it is possible to select the pattern No.

   * If pattern data size is 10Kbyte or more, it is not possible to display the needle entry point diagram.



2. If the pattern has been backed up to the sewing machine, pattern display will be in the state on the left.



3. When changing the pattern that has been backed up, display the pattern change confirmation screen.

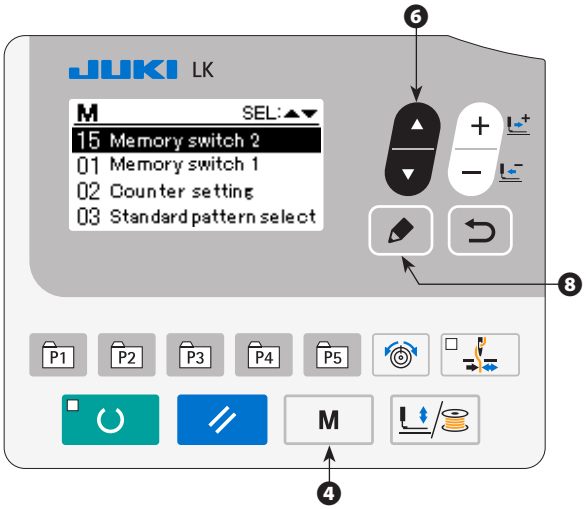
(Remarks) The description only uses the panel diagram of the standard specification.

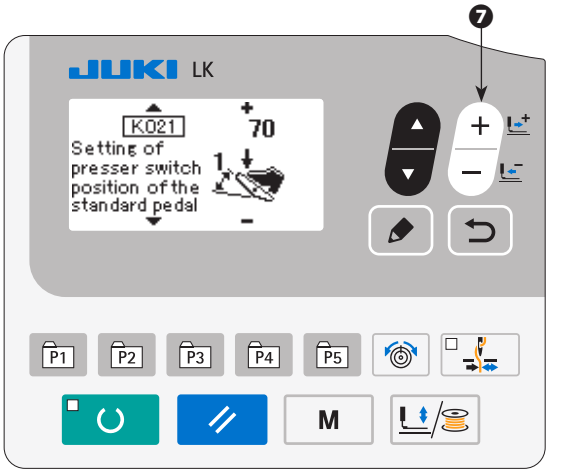
5. Various data list

(1) Sewing data list

☆ All the settings are common in the standard pattern and the user pattern.
On the other hand, each pattern has separate items that can be set in the direct pattern.

Data No.	Item name	Pictograph	Input range	Remarks
S001	Type of pattern		Standard pattern / User pattern	* This data is for display only. To edit the data, delete the direct pattern and create a new direct pattern.
S002	Pattern No.		Standard pattern : 1 to 51 User pattern : 1 to 200	* This data is for display only. To edit the data, delete the direct pattern and create a new direct pattern.
S003	X enlargement/ reduction scale/ actual dimension		When inputting in terms of percentage (%): 20 - 200 % When inputting an actual dimension: Within the range of actual dimensions corresponding to the percentage	Input method (percentage or actual dimension) can be selected by setting the memory switch U064. (Initial value: Input in percentage)
S004	Y enlargement/ reduction scale/ actual dimension		When inputting in terms of percentage (%): 20 - 200 % When inputting an actual dimension: Within the range of actual dimensions corresponding to the percentage	Input method (percentage or actual dimension) can be selected by setting the memory switch U064. (Initial value: Input in percentage)
S006	Sewing speed		400 to 2700	The maximum input range depends on the maximum sewing speed set with the memory switch U001.
S007	X travel amount		− 20 to 20	
S008	Y travel amount		− 20 to 10	
S009	2-step stroke work clamp stroke height		50 to 90	Display/hide of the stroke height can be selected using the memory switch U069. (Initial value: Hide) When the hide is selected, the stroke height is not displayed on the data edit screen.
S010	Position of the last stitch X travel amount		− 2.0 to 2.0	Display/hide of the stroke height can be selected using the memory switch U070. (Initial value: Hide) When the hide is selected, the stroke height is not displayed on the data edit screen.
S011	Position of the last stitch Y travel amount		− 2.0 to 2.0	Display/hide of the stroke height can be selected using the memory switch U070. (Initial value: Hide) When the hide is selected, the stroke height is not displayed on the data edit screen.
S012	Comment		The number of characters that can be input: 14	





(Remarks) The description only uses the panel diagram of the standard specification.

(2) Memory switch

1) Memory switch start and change

① To display the mode screen (service level 2)

When MODE key [M] ❹ is continuously pressed for 6 seconds, "15 memory switch 2" is displayed on the mode screen.

② Selecting the item

Press ITEM SELECT key ❻, and select "memory switch 2". Then press EDIT key ❽.

③ To change the data

In the memory switch data, There are data items to change the value and to select the pictograph.

Data item to change the value is given a number such as "K021". It is possible to change the setting value with DATA CHANGE key ❼.

Data item to select the pictograph is given a number such as "K0xx". It is possible to select the pictograph with DATA CHANGE key ❼.

2) Table of memory switch functions

Various operations of the sewing machine can be set by programming the memory switch.
The initial setting values at the time of shipment differ with models.

(Level 1)

No.	Function	Setting range	Initial value	Remarks
U001	**Max. sewing speed** (Speed can be set in a unit of 100 sti/min.) 	400 to 3200	3200	LK-1903B/BB/BNB, LK-1900BW_BNW, LK-1900S series: 2700LK-1901B/BN; LK-1902B/BN: 3000
U002	**Sewing speed of 1st stitch (With needle thread clamp)** (Speed can be set in a unit of 100 sti/min.) 	400 to 1500	1500	LK-1903B/BB/BNB, LK-1900S series: 400
U003	**Sewing speed of 2nd stitch (With needle thread clamp)** (Speed can be set in a unit of 100 sti/min.) 	400 to 3200 400 to 2700 (LK-1900S Series)	3200	LK-1903B/BB/BNB: 400 LK-1900S series: 900
U004	**Sewing speed of 3rd stitch (With needle thread clamp)** (Speed can be set in a unit of 100 sti/min.) 	400 to 3200 400 to 2700 (LK-1900S Series)	3200	LK-1903B/BB/BNB: 400 LK-1900S series: 2700
U005	**Sewing speed of 4th stitch (With needle thread clamp)** (Speed can be set in a unit of 100 sti/min.) 	400 to 3200 400 to 2700 (LK-1900S Series)	3200	LK-1903B/BB/BNB: 400 LK-1900S series: 2700
U006	**Sewing speed of 5th stitch (With needle thread clamp)** (Speed can be set in a unit of 100 sti/min.) 	400 to 3200 400 to 2700 (LK-1900S Series)	3200	LK-1903B/BB/BNB: 400 LK-1900S series: 2700
U007	**Thread tension of 1st stitch (With needle thread clamp)** 	0 to 200	200	LK-1900S series: NA
U008	**Thread tension at the time of thread trimming** 	0 to 200	0	LK-1900S series: NA
U009	**Changeover timing of thread tension at the time of thread trimming** 	−6 to 4	0	LK-1900B series, LK-1900BN series : 4
U010	**Sewing speed of 1st stitch** (Without needle thread clamp) (Speed can be set in a unit of 100 sti/min.) 	400 to 1500	400	LK-1900S series: NA
U011	**Sewing speed of 2nd stitch** (Without needle thread clamp) (Speed can be set in a unit of 100 sti/min.) 	400 to 3200	900	LK-1903B/BB/BNB: 400 LK-1900S series: NA
U012	**Sewing speed of 3rd stitch** (Without needle thread clamp) (Speed can be set in a unit of 100 sti/min.) 	400 to 3200	3200	LK-1903B/BB/BNB: 600 LK-1900S series: NA
U013	**Sewing speed of 4th stitch** (Without needle thread clamp) (Speed can be set in a unit of 100 sti/min.) 	400 to 3200	3200	LK-1903B/BB/BNB: 1000 LK-1900S series: NA
U014	**Sewing speed of 5th stitch** (Without needle thread clamp) (Speed can be set in a unit of 100 sti/min.) 	400 to 3200	3200	LK-1903B/BB/BNB: 2700 LK-1900S series: NA
U015	**Thread tension of 1st stitch** (Without needle thread clamp) 	0 to 200	0	LK-1900S series: NA
U016	**Changeover timing of thread tension at the sewing start** (Without needle thread clamp) 	−5 to 2 -10 to 2 (LK-1900S Series)	−5	
U019	**Selection of pedal** 0 : Standard pedal 1 : Standard pedal (2-step stroke) 2 : Optional pedal 3 : Optional pedal (2-step stroke)	-	0	
U020	**Selection of start pedal** : Standard pedal : Optional pedal	-		

No.	Function	Setting range	Initial value	Remarks
U024	**Optional pedal 1 operation**  : OFF when depressing pedal again  :OFF when detaching from pedal	-		
U025	**Optional pedal 2 operation**  : OFF when depressing pedal again  : OFF when detaching from pedal	-		
U026	**Height of work clamp foot at the time of 2-step stroke** 	50 to 90	70	Height is lowered when the set value is increased.
U030	**Selection of base point of pattern enlargement/reduction**  : Origin  : Sewing start point	-		
U031	**Sewing machine operation can be stopped with panel key (clear key).**  : Disable  : Panel RESET key  : External switch	-		
U032	**Buzzer sound can be prohibited.**  **:** Without buzzer sound  : Panel operation sound  : Panel operation sound + error sound	-		
U033	**Number of stitches that needle thread clamp releases is set.** 	1 to 7 stitches	2	For LK-1903B/BB/BNB set to 3. LK-1900S series: NA
U034	**Clamping timing of needle thread clamp can be delayed.** 	− 10 to 0	0	Timing is delayed in "-" direction. LK-1900S series: NA
U035	**Needle thread clamp control can be prohibited.**  : Normal  : Prohibited	-		Misapplication of panel is protected. For LK-1903B/BB/BN, set to "  ". LK-1900S series: NA
U036	**Feed timing is selected.** When stitches are not well-tightened, set the value in "–" direction. 	− 8 to 16	12	Setting on excessive "–" side may cause needle breakage. Be careful when sewing heavy-weight material.
U037	**State of work clamp foot after completion of sewing can be selected.**  : Work clamp foot goes up after moving at the sewing start  : Work clamp foot goes up immediately after the end of sewing.  : Work clamp foot goes up by pedal operation after moving at the sewing start.	-		For LK-1903B/BN/BNB/BR35, set to "  ".
U039	**Execution of origin retrieval every time after completion of sewing can be performed.** (Except cycle stitching)  : Without origin retrieval  : With origin retrieval	-		
U040	**Setting of origin retrieval in cycle stitching can be set.**  : Without origin retrieval  : Every time 1 pattern is completed  : Every time 1 cycle is completed	-		

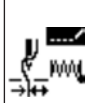
No.	Function	Setting range	Initial value	Remarks
U041	**State of work clamp foot when machine stopped by temporary stop command can be selected.**  : Work clamp foot goes up.  : Work clamp foot goes up with work clamp foot switch.  : Lift of work clamp foot is prohibited.	-		
U042	**Needle bar stop position is set.** : UP position  : Upper dead point	-		Needle bar rotates in the reverse direction after the UP position stop and stops when upper dead point stop is set.
U046	**Thread trimming can be prohibited.**  : Normal  : Thread trimming prohibited	-		
U048	**Route of origin return by means of clear key can be selected.**  : Straight line return  : Reverse return of pattern	-		This function is used when straight line return from the midway of pattern to the start of sewing is not possible.
U049	**Bobbin winding speed can be set.**	800 to 2000	1600	Max. speed limitation has priority.
U050	**Operation timing of material closing is selected. LK-1901B only**  : Output prohibited  : Operation when work clamp foot comes down.  : Operation at the time of start	-		For the machines other than LK-1901B,BN, this function is not indicated.
U051	**The wiper mid-operation at thread trimming can be set.**  : Wiper mid-operation at thread trimming disabled Presser down → Wiper to the right → Sewing → Thread trim → Sewing → Thread trim → Wiper to the left  : Wiper mid-operation at thread trimming enabled ① Presser down → Wiper to the right → Sewing → Thread trim → Wiper to the left → Wiper to the right → Sewing → Thread trim → Wiper to the left  : Wiper mid-operation at thread trimming enabled ② Presser down → Wiper to the right → Sewing → Thread trim → Wiper to the left → Sewing → Thread trim → Wiper to the right → Wiper to the left  : Magnet wiper Magnet wiper enable/disable * To set the standard wiper disabled, remove the wiper.	-		① : Without return of the wiper ② : With return of the wiper
U055	**This key selects enable/disable of tie stitching for button sewing.**  : Enable  : Disable	-		.
U064	**The dimension input increment can be selected.**  : In percentage (%)  : In dimension	-		
U065	**Y origin shift method can be selected.**  : Standard  : Offset by −5 mm (for 1904 work clamp)	-		
U069	**Common/individual of the 2-step stroke height is selected.**  : Common  : Individual (the height can be set with respect to each direct pattern)	-		
U070	**Display/hide of the travel of the last stitch can be set.**  : Hide  : Display	-		

No.	Function	Setting range	Initial value	Remarks
U074	**The fan operation can be set.**  : Energy saving mode  : Constantly operates	-		
U075	**With/without air pressure detection**  : Without air pressure detection  : With air pressure detection	-	With air pressure detection	Displayed only for the LK-1900BB/BNB, LK-1903BB/BNB
U076	**Correction of thread waste retaining position** With this switch, the timing to start traveling from the thread clamping position to the thread releasing/thread waste retaining position can be changed. 	−10 to 10 (In the range of −344°to 64°in increments of 4°)	0	Displayed only for the LK-1900BB/BNB, LK-1903BB/BNB
U077	**Used for selecting enable / disable of the count-completion display for the sewing counter**  : Count-completion display is disabled   : Count-completion display is enabled			
U080	**Voice setting (Only LBH-1900S Series)**    **All voice guidance ON** **Only panel operation guidance ON** **All voice guidance OFF**	-		
U081	**Voice language selection (Only LK-1900S Series)**   **English** **Chinese**	-		
U085	**Thread tension value of the last stitch** Tension applied to the thread at the last stitch position is set at a fixed value	1 to 200	LK1900BB :30 Models other than LK1900BB :0	Displayed only for the LK-1900BB/BNB, LK-1903BB/BNB
U086	**ON time of thread waste suction** Time to OFF from ON of thread waste suction nozzle / thread waste suction	0 to 3000 ms	600	Displayed only for the LK-1900BB/BNB, LK-1903BB/BNB
U087	**ON time of thread waste suction nozzle** Time to OFF from ON of thread waste suction nozzle	0 to 1000 ms	600	Displayed only for the LK-1900BB/BNB, LK-1903BB/BNB
U088	**Number of stitches for releasing thread-waste** Length of time from thread trimming at the beginning of sewing to releasing of the thread-waste remained	0 to 999 stitches	LK1900BB : 3 LK1903BB : 0	Displayed only for the LK-1900BB/BNB, LK-1903BB/BNB
U089	**Bird's nest suction time** Length of time during which bird's nest suction mechanism operates	100 to 1000 ms	100	Displayed only for the LK-1900BB/BNB, LK-1903BB/BNB

No.	Function	Setting range	Initial value	Remarks
U090	**Rest time to the start of suction of bird's nest** Length of time from suction of shorter-thread remained after thread trimming to suction of thread of bird's nest	80 to 500 ms	80	Displayed only for the LK-1900BB/BNB, LK-1903BB/BNB
U239	**Choice of language** English : Not yet selected (display in English) 日本語 : Japanese (LK-1900B Series, LK-1900BN Series) English : English 中文 简体字 : Chinese (simplified char2acters) 中文 繁體字 : Chinese (traditional Chinese) Español: Spanish Italiano : Italian Français: French Deutsch: German Portu guês : Portuguese Türkçe : Turkish Tiếng Việt : Vietnamese 한국어 : Korean (LK-1900B Series, LK-1900BN Series) Indon esia : Indonesian Русский : Russian العربية : Arabic (LK-1900B Series, LK-1900BN Series) ខ្មែរ : Chmer (Only the LK-1900S Series) বাংলা : Bengal (Only the LK-1900S Series)	-	English	
U245	**Grease-up needle** 	0 - 120000000 (Stitches) (Cannot be set)		The number of stitches can be cleared by keeping the RESET key held pressed. "Refer to 7.-(3) Grease-up procedures for the specified position"

(Level 2)

No.	Function	Setting range	Initial value	Remarks
K021	Standard pedal, work clamp foot switch position 	10 to 250	90	When the setting value is increased, the amount of pedal tread becomes larger.
K022	Standard pedal, 2-step stroke switch position 	10 to 250	150	When the setting value is increased, the amount of pedal tread becomes larger.
K023	Standard pedal, start switch position 	10 to 250	230	When the setting value is increased, the amount of pedal tread becomes larger.
K027	Motor-driven work clamp foot lowering speed 	100 to 4000 pps	4000	
K028	Motor-driven work clamp foot lifting speed 	100 to 4000 pps	1500	Too much rise in the setting level may result in malfunction.
K029	Thread trimmer drive speed (+ work clamp foot rise) 	100 to 4000 pps	3000	Too much rise in the setting level may result in malfunction.
K038	Work clamp foot rise motion at sewing end can be set.  : Normal  : Work clamp foot rise prohibited	-		
K043	Thread trimming speed  : 400 sti/min  : 800 sti/min	-		This is number of revolutions of the thread spreading by moving knife. When the sewing machine has stopped, perform the thread trimming.
K044	Enable/disable selection of thread trimming jump feed control  : Disable  : Enable	-		
K045	Diameter of needle hole guide at the time of thread trimming jump feed control 	1.6 to 4.0 mm	1.6 mm	When the setting value is increased, the amount of feeding becomes larger.
K047	Thread trimming can be disabled.  : Normal  : Thread trimming disabled	-		All thread trimming operation is disabled.
K052	Magnet wipe-out time (Setting possible in the unit of 10 ms) After the thread trimming motor in turned ON, only K052 delays and then the wiper operates. 	10 to 500 ms	50	Effective only if the magnet wiper U051 has been selected.
K053	Magnet wipe-in time (Setting possible in the unit of 10 ms) After the wiper operated, only K053 delays and then the wiper operates again. 	10 to 500 ms	100	Effective only if the magnet wiper U051 has been selected.
K054	Wipe-out timing at the time of upper dead point stop  : Sewing machine returned and upper dead point stop after wiper operation in up position.  : Wiper operation after upper dead point stop	-		Enabled when U051's mid-operation ① and ② are set.
K056	Moving limit range in +X direction (right side) 	-20 to 20 mm	20 (LK-1903B/BN/BNB : 3)	In the state of shipment, no work clamp foot configuration is considered.
K057	Moving limit range in -X direction (left side) 	-20 to 20 mm	-20 (LK-1903B/BN/BNB : 3)	In the state of shipment, no work clamp foot configuration is considered.

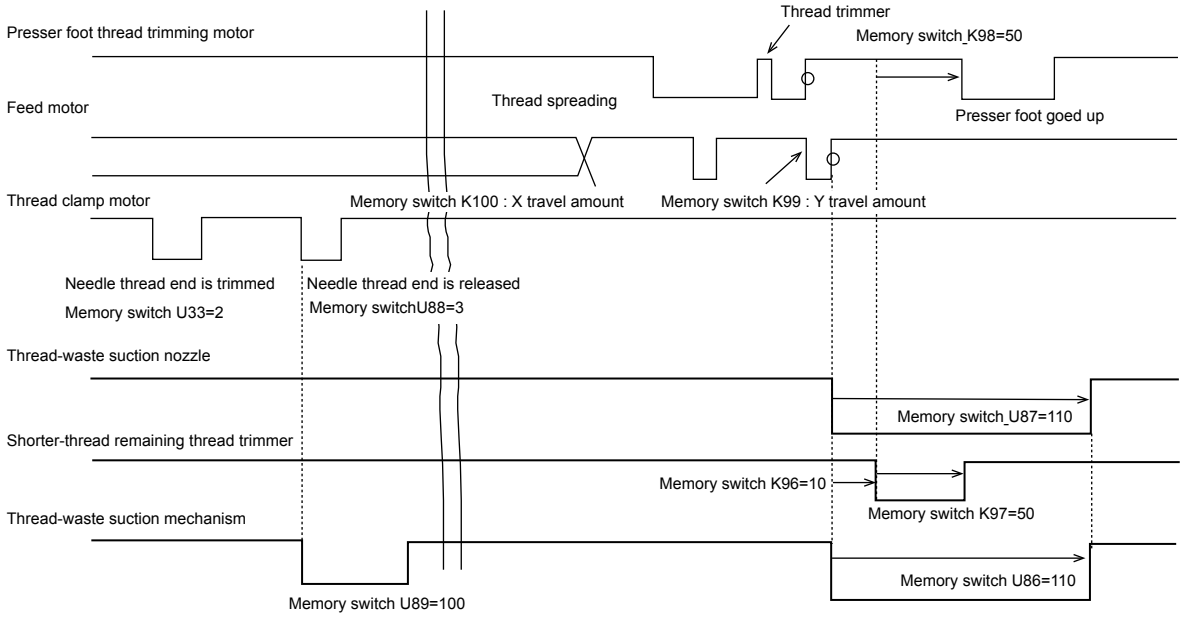
No.	Function	Setting range	Initial value	Remarks
K058	Moving limit range in +Y direction (back side) 	-20 to 10 mm	10 (LK-1903B/BN/BNB : 3)	In the state of shipment, no work clamp foot configuration is considered.
K059	Moving limit range in -Y direction (front side) 	-20 to 10 mm	-20 (LK-1903B/BN/BNB : 3)	In the state of shipment, no work clamp foot configuration is considered.
K060	Jump feed speed of XY (Setting possible in the unit of 10 pps) 	100 to 4000 pps	2000	
K061	XY feed forward / back speed (Setting possible in the unit of 10 pps) 	100 to 4000 pps	500	
K062	When the power supply is turned on, automatic preparation is possible without pressing the READY key.  : Normal  : Automatic preparation is operated when the power supply is ON.	-		
K063	While the needle stays in an upper position, a current is maintained in the main motor to make the needle hard to down.  : Holding disabled  : Holding enabled	-		
K066	Number of pulses for work clamp foot interlock wiper operation 	30 to 60	45	
K068	At preparatory state, time to output thread tension can be set up at the time of thread tension setting. 	0 to 20	20	
K091	Used to enable/disable the feed forward travel function, when checking the shape, while the needle is in its lower position.  : Disable  : Enable	-		
K092	Used to enable/disable the feed forward travel function, when checking the shape, by means of the pulley.  : Disable  : Enable	-		
K093	Returning method selection of standby position of the thread clamp  : Except for LK-1900BB, 1903BB, 1900BNB and 1903BNB  : LK-1900BB, 1903BB , 1903BB, 1900BNB and 1903BNB (Refuge position of sewing end is moved to standby position by the work clamp foot switch.)	-	Normal : LK-1900BB/ BNB, 1903BB/BNB : Refuge position of sewing end Standard model : Normal	When this function is set up conventionally for LK-1900BB/BNB and LK-1903BB/BNB, a cycle time becomes long after suction of shorter thread remaining thread trimmer because the needle thread clamp moves forward.
K096	ON delay time of shorter thread remaining thread trimmer Time to shorter thread remaining thread trimmer ON from thread waste suction nozzle / thread waste suction ON	0 to 1000 ms	100	Only LK-1900BB/BNB and 1903 BB/BNB are displayed.
K097	ON time of shorter thread remaining thread trimmer Time to OFF from ON of shorter thread remaining thread trimmer	0 to 1000 ms	200	Only LK-1900BB/BNB and 1903 BB/BNB are displayed.
K098	Work clamp foot lifter delay time of shorter thread remaining thread trimmer Time to the start of work clamp foot lifter from ON of shorter thread remaining thread trimmer	0 to 1000 ms	100	Only LK-1900BB/BNB and 1903 BB/BNB are displayed.

No.	Function	Setting range	Initial value	Remarks
K099	Y moving amount of material feed of shorter thread remaining thread trimmer Y moving amount from the last stitch before shorter thread remaining thread trimmer Set up in "+" direction if you want to shorten the length of thread remaining on the wrong side of material. Set up in "-" direction if you want to lengthen it.	-3.0 to 3.0	(LK-1900BB/BNB : 0.6) (LK-1903BB/BNB : 0.9)	Only LK-1900BB and 1903 BB are displayed.
K100	X moving amount of material feed of shorter thread remaining thread trimmer X moving amount from the last stitch before shorter thread remaining thread trimmer Set up in "+" direction if you want to shorten the length of thread remaining on the wrong side of material. Set up in "-" direction if you want to lengthen it.	-3.0 to 3.0	(LK-1900BB/BNB : 0.6) (LK-1903BB/BNB : 0.8)	
K101	Number of pulses for work clamp foot wiper drive at the time of inversion of a thread trimming motor Wiper operation adjustment at the time of thread trimming while sewing a pattern Value of increase and decrease is set for the value of "K066 Number of pulses for work clamp foot interlock wiper operation". * This function can be set up even for a standard machine.	-20 to 20	7	
K102	LK-1903BB standard pattern limitation Select whether to use the patterns of two holes lengthwise, three holes, and four holes lengthwise two lines.  : Use permitted  : Use prohibited	-		When you select a pattern that is not allowed to use, remove the cloth presser bar and sew a cloth. Only LK-1900BB/BNB and LK-1903BB/BNB are displayed.
K103	Direct pattern type, No. Edit is prohibited/permitted:  : Prohibited  : Permitted	-	Prohibited	
K150	The head falling detector switch can be disabled.  : Normal  : Head falling detector switch disabled	-		
K241	Model classification 0 : LK1900SSS 1 : LK1900SHS 2 : LK1903SSS-301 3 : LK1903SSS-102	0 to 3	Setting values are specified at left according to models.	LK-1900B Series
	Model classification 0 : LK1900BSS 1 : LK1900BHS 2 : LK1900BFS 3 : LK1900BMS 4 : LK1901BSS 5 : LK1902BSS 6 : LK1902BHS 7 : LK1903BSS-301 8 : LK1903BSS-302 9 : LK1903BSS-311/BR35 10 : LK1903BSS-312/BR35 11 : LK1900BWS 12 : LK-1900BBS 13 : LK-1900BBF 14 : LK-1903BBS301 15 : LK-1903BBS302	0 to 15	Setting values are specified at left according to models.	LK-1900S Series, LK-1900BN Series

3) Supplement for the memory switch

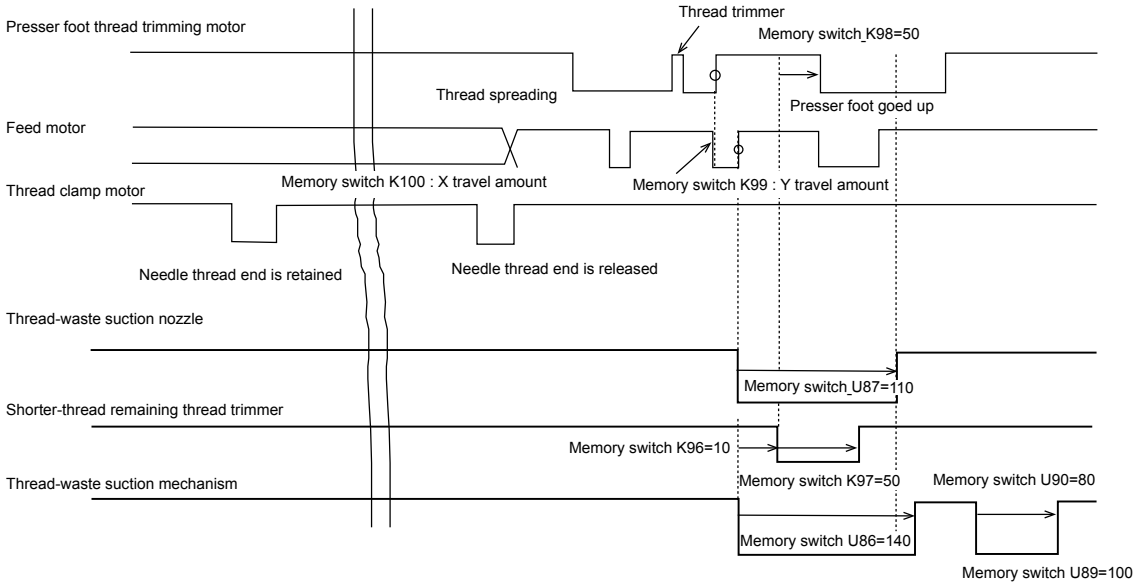
① Bird's nest short tail function timing chart (summary)

(LK-1900BB, 1903BNB)



The thread end clamped by the thread clamp device is pulled and trimmed (by the counter knife mounted on the rear side of needle hole guide). The trimmed needle thread end is released with the memory switch U088 and sucked with U089.

(LK-1903BB, 1903BNB)



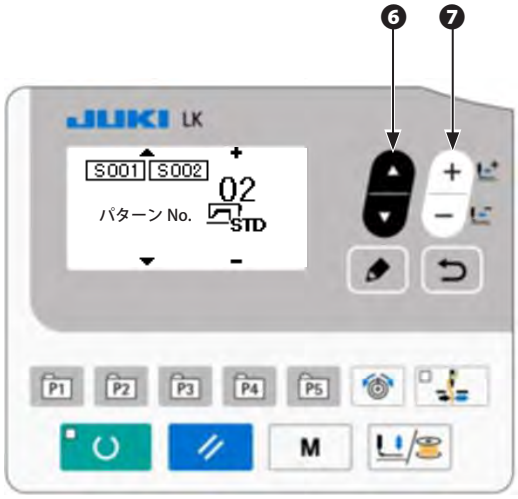
The needle thread end clamped by the thread clamp device is held in this state until the end of sewing is reached. Needle thread end is trimmed together with bobbin thread by the "(remaining end) thread trimmer".

② **For permission of “Direct type and No.” of K103 direct pattern**

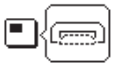
Select a direct pattern and display S007/S002 operating △▽ keys ❻ .

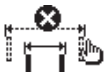
Select “Pattern type and No.” operating +/- keys ❼ .

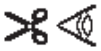
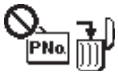
(Note) If "Pattern type • No." is changed, other items (enlargement/reduction scale, thread tension, etc. [LK-1900B Series, LK-1900BN Series]) will be initialized.

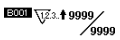
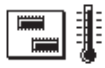


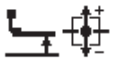
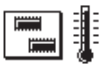
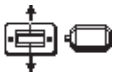
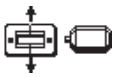
(3) Error code list

Error code	Indication	Description of error	Corrective measure	Remarks
E007		**Machine lock error** The main shaft of the sewing machine does not rotate due to some troubles.	Turn OFF the power switch and remove the cause of troubles.	
E010		**Pattern No. error** Backed-up pattern No. is not registered in data. The data may be corrupted.	Press the reset switch and check the pattern No.	
E011		**External media not inserted** USB thumb drive is not inserted.	Re-operation is enabled after resetting.	
E012		**Read error, external** Data cannot be read from the USB thumb drive.	Re-operation is enabled after resetting.	
E013		**Write error, external** Data cannot be written on the USB thumb drive.	Re-operation is enabled after resetting.	
E014		**Write-protect** USB thumb drive is write-protected.	Re-operation is enabled after resetting.	
E015		**Format error** USB thumb drive cannot be formatted.	Re-operation is enabled after resetting.	
E016		**External media capacity over** Memory capacity of the USB thumb drive to write pattern data is not sufficient.	Re-operation is enabled after resetting.	
E017		**Machine memory capacity over** Memory capacity of the sewing machine to write pattern data is not sufficient.	Re-operation is enabled after resetting.	
E019		**File size over** The pattern data to be read from the USB thumb drive is too large. (Max.: Approximately 20000 stitches)	Re-operation is enabled after resetting.	
E022		**File No. error** There is no designated file in the external media.	Possible to recover by reset.	Previous screen
E024		**Pattern data size over** The pattern data to be written on the sewing machine memory is too large. (Max.: Approximately 20000 stitches)	Re-operation is enabled after resetting.	
E030		**Needle bar position error** Needle bar is not in the specified position.	Turn the hand pulley to return the needle bar to its specified position.	
E031		**Air pressure drop** Air pressure is dropped.	Supply air and reset the sewing machine. Then, the operation is enabled again.	

Error code	Indication	Description of error	Corrective measure	Remarks
E040		**Sewing area over** The sewing area is beyond the limit.	Press the reset key and check the pattern and X/Y scale rate.	This error is output when max. sewing area, 30 x 40 is over. Interference of the work clamp foot with needle is not protected.
E043		**Enlargement error** The sewing pitch is beyond 10 mm.	Press the reset key and check the pattern and X/Y scale rate.	
E045		**Pattern data error** The pattern data cannot be adopted.	Re-operation is enabled after resetting.	
E050		**Temporary stop** Temporary stop by operating the reset switch while the sewing machine is running. (Refer to memory switch No. U031.)	Re-start or return-to-origin after thread trimming by means of the reset switch (For further details, refer to "How to use the temporary stop" in the Instruction Manual.)	
E061		**Memory switch data error** Memory switch data is broken or revision is old.	Re-operation is enabled after resetting.	
E063		**Machine head identification error** The type of machine head and the type of control box do not match.	Turn the power OFF and contact JUKI or your distributor.	
E204		**Connection alert for the USB thumb drive which is used for sewing** Sewing has been carried out by 10 or more times with the USB thumb drive inserted in the USB port.	Re-operation is enabled after resetting.	
E220		**Grease replenishing time information** Information as to the time of replenishing the designated places with grease.	Replenish the designated places with grease and set memory switch U245 to “0” with the RESET key. Error can be released with the RESET key when immediate replenishing with grease cannot be performed during sewing operation.	Refer to "7.-(3) Grease-up procedures for the specified position".
E221		**Grease replenishing warning error** Sewing machine has stopped since the time of replenishing the designated places with grease has come.	Immediately perform replenishing with grease and set memory switch U245 to “0” with the RESET key.	Refer to "7.-(3) Grease-up procedures for the specified position".
E302		**Head tilt error** Head tilt detection switch is turned OFF.	The sewing machine cannot be operated with the head tilted. Return the sewing machine head to its proper position.	

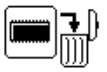
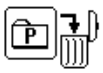
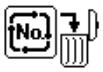
Error code	Indication	Description of error	Corrective measure	Remarks
E303		**Z-phase detection error** Detection of the upper dead point of the sewing machine cannot be performed.	Turn OFF the power switch. Check whether the pin CN15 of SDC board is disconnected or loose.	
E305		**Work clamp foot/thread trimmer knife position error** The thread trimmer knife is not in the proper position.	Turn OFF the power switch and check whether CN72 of INT board is disconnected or loose.	
E396		**Shorter thread remaining thread trimming cylinder error** The shorter thread remaining thread trimming cylinder fails to operate. (The shorter thread remaining thread trimming cylinder sensor fails to turn OFF when the cylinder operates.)	Turn OFF the power switch. Check whether the air pressure is adequate and whether the shorter thread remaining thread trimming cylinder sensor and MAIN PCB CN53 have loosened or fallen off.	This error occurs when it does not become to the state that the shorter thread remaining thread trimming cylinder turns ON and the sensor turns OFF before origin retrieval or during shorter thread remaining thread trimming.
E397		**Suction nozzle cylinder error** The suction nozzle cylinder fails to operate. (The suction nozzle cylinder sensor fails to turn OFF when the cylinder operates.)	Turn OFF the power switch. Check whether the air pressure is adequate and whether the suction nozzle cylinder sensor and MAIN PCB CN54 have loosened or fallen off.	This error occurs when it does not become to the state that the suction nozzle cylinder turns ON and the sensor turns OFF during shorter thread remaining thread trimming.
E398		**Shorter thread remaining thread trimming cylinder sensor error** The shorter thread remaining thread trimming cylinder sensor fails to detect.	Turn OFF the power switch. Check whether the air pressure is adequate and whether the shorter thread remaining thread trimming cylinder sensor and MAIN PCB CN53 have loosened or fallen off.	This error occurs when the shorter thread remaining thread trimming cylinder sensor does not turn ON at the time of origin retrieval or during sewing operation.
E399		**Suction nozzle cylinder sensor error** The suction nozzle cylinder sensor fails to detect.	Turn OFF the power switch. Check whether the air pressure is adequate and whether the suction nozzle cylinder sensor and MAIN PCB CN54 have loosened or fallen off.	This error occurs when the suction nozzle cylinder sensor does not turn ON at the time of origin retrieval or during sewing operation.
E405		**Prohibition of deletion of direct patterns** The direct pattern is set in the cycle sewing data.	Re-operation is enabled after resetting.	

Error code	Indication	Description of error	Corrective measure	Remarks
E408		**Password reset error** Wrong password has been entered.	Re-operation is enabled after resetting.	LK-1900S series
E430		**Counter set-value is reached** The set value of the counter is reached. * For the type of counter and the counter value displayed depends on the predetermined counter	Re-operation is enabled after resetting.	
E704		**Nonagreement of system version** When the version of the system software is not matched at the time of the initial communication	When it is displayed, upgrade the version by pressing the M button.	This occurs when the version of the system software is not matched at the time of the initial communication.
E730		**Encoder trouble A** Encoder A or B phase cannot be detected.	Turn OFF the power switch. Check whether the pin CN15 of SDC board is disconnected or loose.	
E731		**Encoder trouble B** Encoder U, V or W phase cannot be detected.	Turn OFF the power switch. Check whether the pin CN15 of SDC board is disconnected or loose.	
E733		**Reverse rotation of motor** The motor is reversing.	Turn OFF the power switch and check whether coupling of the main motor is loose.	
E811		**Overvoltage error** Power supply voltage is beyond the specified value.	Check the power supply voltage.	
E813		**Low voltage error** Power supply voltage is short.	Check the power supply voltage.	
E820		**24V DC fuse blown**	Turn the power switch to OFF and check the F1 fuse on the SDC board.	LK-1900S series
E901		**Motor driver trouble** Error from the motor driver is detected.	Turn OFF the power switch and turn ON the power switch again after some time.	
E903		**Stepping motor power supply trouble** Power supply of the stepping motor is not output.	Turn the power off and check the F1 fuse on the SDC board.	Check the cause of blown out of the fuse.
E904		**Solenoid power supply trouble** Power supply of the solenoid is not output.	Turn the power off and check the F2 fuse on the SDC board.	Check the cause of blown out of the fuse.
E905		**SDC board overheat** Overheat of SDC board	Turn OFF the power switch and turn ON the power switch again after some time.	
E907		**X-origin retrieval error** X-origin sensor does not change.	Turn OFF the power switch and check whether CN62 of INT board or CN42 of MAIN board is disconnected or loose.	

Error code	Indication	Description of error	Corrective measure	Remarks
E908		**Y-origin retrieval error** Y-origin sensor does not change.	Turn OFF the power switch and check whether CN63 of INT board or CN43 of MAIN board is disconnected or loose.	
E910		**Work clamp foot origin retrieval error** Work clamp foot origin sensor does not change.	Turn OFF the power switch and check whether CN71 of INT board or CN44 of MAIN board is disconnected or loose.	
E913		**Needle thread clamp origin retrieval error** Needle thread clamp origin sensor does not change.	Turn OFF the power switch and check whether CN77 of INT board or CN45 of MAIN board is disconnected or loose.	
E914		**Feed trouble error** Timing lag between feed and main shaft has occurred.	Turn OFF the power switch and check whether coupling of the main motor is loose.	
E915		**Communication error between PANEL and MAIN** Communication between the PANEL and MAIN cannot be performed.	Turn OFF the power switch and check whether CN34 of MAIN board is loose.	
E916		**Communication error between MAIN and SDC** Communication between MAIN and SDC cannot be performed.	Turn OFF the power switch and check whether CN32 of MAIN board or CN15 of SDC board is disconnected or loose.	
E918		**MAIN board overheat** Overheat of MAIN board	Turn OFF the power switch and turn ON the power switch again after some time.	
E926		**X-motor displacement error** X-feed motor is out of position.	Turn OFF the power.	
E927		**Y-motor displacement error** Y-feed motor is out of position.	Turn OFF the power.	
E929		**Needle thread clamp motor displacement error** Needle thread clamp motor is out of position.	Turn OFF the power switch and check whether CN45 of MAIN circuit board is loose.	
E931		**X motor overload error** The load applied to the X feed motor is excessive.	Turn OFF the power.	
E932		**Y motor overload error** The load applied to the Y feed motor is excessive.	Turn OFF the power.	
E934		**Needle thread clamp motor overload error** The load applied to the needle thread clamp motor is excessive.	Turn OFF the power.	
E943		**MAIN memory write-in trouble** Memory write-in of MAIN board cannot be performed.	Turn OFF the power switch and check the insertion of ROM of U22 of MAIN board.	

Error code	Indication	Description of error	Corrective measure	Remarks
E946		**INT memory write-in trouble** Memory write-in of the machine head board cannot be performed.	Turn OFF the power switch and check whether CN30 of MAIN board is disconnected or loose.	
-		**Power supply fault, connector disconnection** The power supply voltage specification is not correct. The connector is disconnected.	Turn OFF the power switch. Check the power supply voltage, and check whether CN3 of FLT board and CN13 of SDC board is disconnected or loose.	

(4) Message list

Masage No.	Display	Display message	Description
M520		Erase is performed. OK ?	Erase confirmation of user's pattern
M521		Erase is performed. OK ?	When deletion of the direct pattern is checked.
M522		Erase is performed. OK ?	Erase confirmation cycle pattern
M523		Pattern data is not stored in memory. Erase is OK ?	Erase confirmation of bckup data
M524		Erase is performed. OK ?	When deletion (of pattern data) is checked on the communication screen
M525		Erase is performed. OK ?	When deletion (of machine data) is checked on the communication screen
M528		Overwriting is performed. OK ?	Overwriting confirmation of user's pattern
M529		Overwriting is performed. OK ?	Overwriting confirmation of media
M530		Overwriting is performed. OK ?	When overwrite is checked on the communication screen (Panel + pattern data)
M531		Overwriting is performed. OK ?	When overwrite is checked on the communication screen (Media + pattern data)
M533		Overwriting is performed. OK ?	When overwrite is checked on the communication screen (Panel + machine data)
M537		Deleting is performed. OK ?	When deletion of (thread tension) data is checked on the comuunication screen
M542		Formatting is performed. OK ?	Format confirmation
M547		Overwriting cannot be performed since data exists.	Overwrite is disabled (panel)

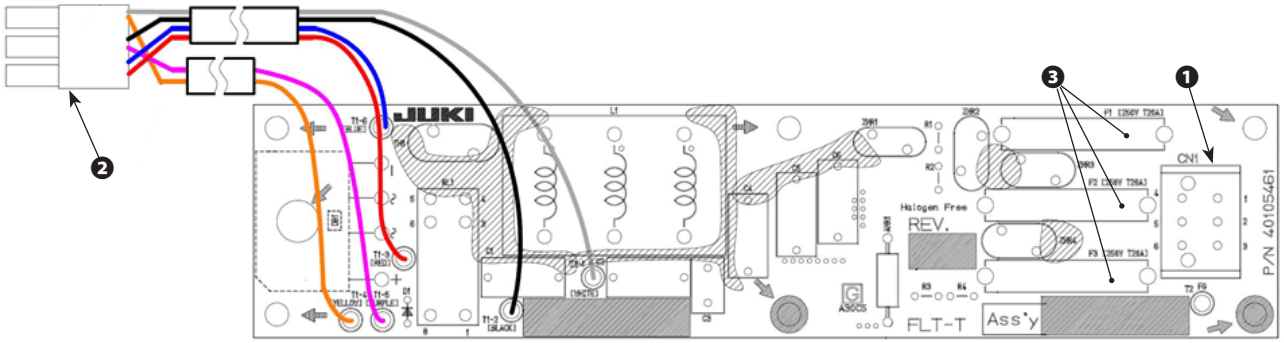
Masage No.	Display	Display message	Description
M548		Overwriting cannot be performed since data exists.	Overwrite is disabled (media)
M581		Registration is canceled.	Registration of a direct pattern
M582		Copy is canceled.	Exited from the pattern data screen without copying
M583		Copy is canceled.	Exited from the direct pattern screen without copying
M584		Copy is canceled.	Exited from the cycle pattern screen without copying

6. Electrical components

(1) Various printed wiring boards

1) FLT-T board (asm.)

This board is the power supply filter board for 3-phase specification.

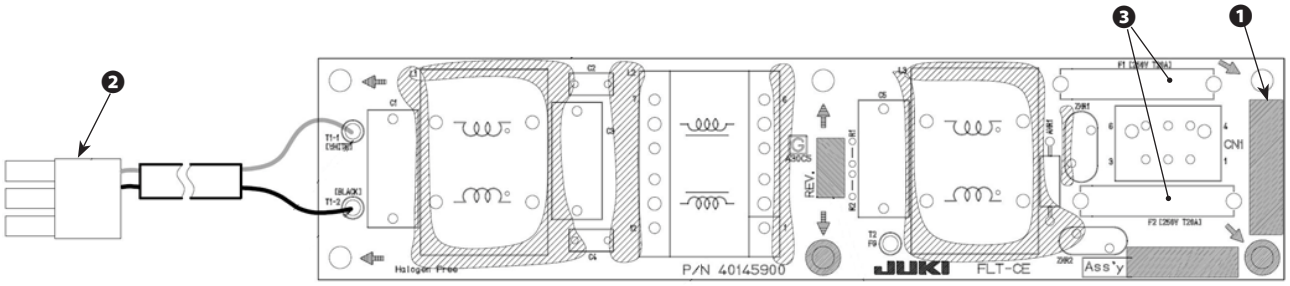


No.	Connector and fuse name	Connection destination, name	Remarks
❶	CN1	Power switch	Power inlet
❷	CN16	SDC board	Power outlet
❸	F1, F2, F3	20A time-lag fuse	Non-removable

2) FLT-CE board (asm.)

This board is the power supply filter board for Europe.

Perform the noise reduction.

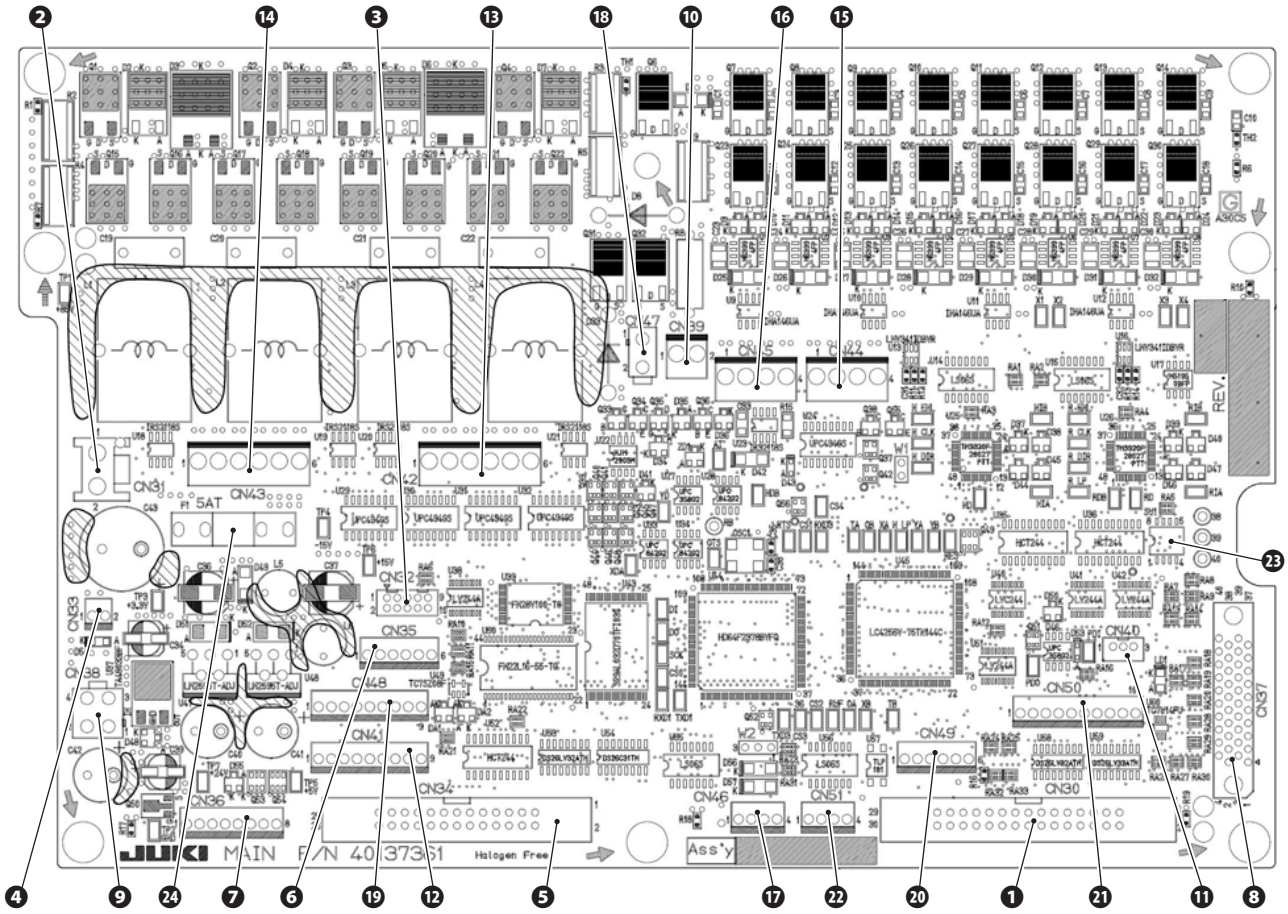


No.	Connector and fuse name	Connection destination, name	Remarks
❶	CN1	Power switch	Power inlet
❷	CN16	SDC board	Power outlet
❸	F1, F2	20A time-lag fuse	Non-removable

3) MAIN board (asm.)_Standard specification (MC-670)

Overall controls are carried out, such as stepping motor drive of 4-axes (X-axis, Y-axis, work clamp foot/ thread trimming and needle thread clamp), control of active tension, storing of memory switch, etc.
In addition, all the data present in “Table 2 All sewing machine data” in “4.-(6) How to use the communication functions” will be saved. When replacing the MAIN board assembly, save the all sewing machine data on a storage media in advance and write the data back after replacement.
The K241 (memory switch) cannot be written out. Reset K241 (memory switch).

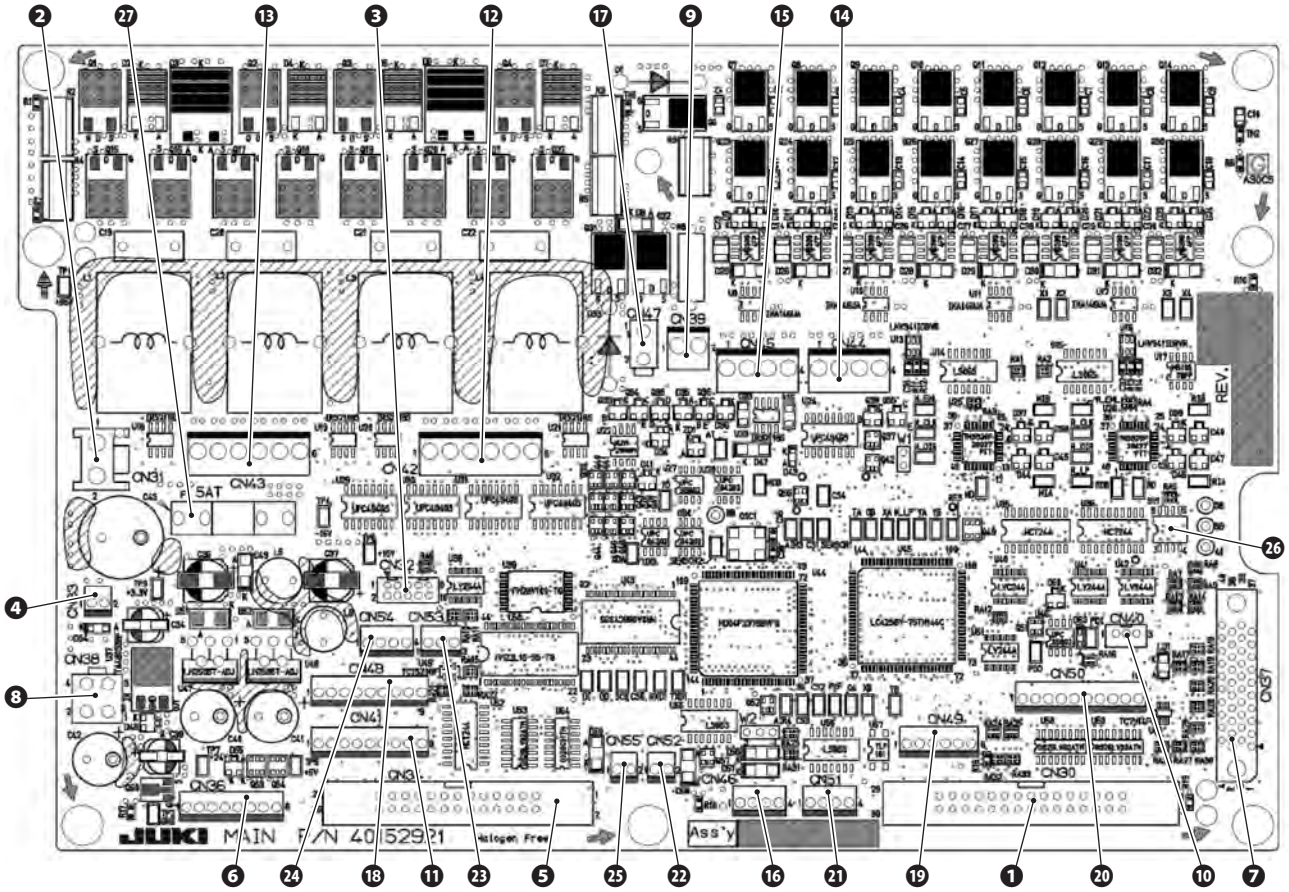
① Standard specification [MC-670]



No.	Connector and other name	Connection destination, name	Remarks
❶	CN30	For machine head INT board	
❷	CN31	SDC power supply 2	
❸	CN32	Not installed	For CPU debugging
❹	CN33	Fan	
❺	CN34	Operation panel	
❻	CN35	Not installed	Not installed
❼	CN36	BR interface	
❽	CN37	SDC signal	
❾	CN38	SDC power supply 1	
❿	CN39	AT solenoid	
⓫	CN40	Pedal sensor	
⓬	CN41	For option pedal	Pedal switch
⓭	CN42	X-feed motor	
⓮	CN43	Y-feed motor	
⓯	CN44	Work clamp foot/thread trimming motor	
⓰	CN45	Thread clamp motor	
⓱	CN46	For option	For air output
⓲	CN47	Material drawing solenoid (LK1901B)	
⓳	CN48	Not used	For CPU writing
⓴	CN49	Not used	For PLD writing
㉑	CN50	Not used	For DSP writing
㉒	CN51	For option	For temporary stop / thread breakage detection
㉓	DipSW1-1	For key lock setting...Generally OFF	[Initialization]
	DipSW1-2	Not used .....Generally OFF	Turn ON the DipSW1-4. Then turn ON the power while the pedal is depressed, return to the factory setting all such as sewing data, memory switch etc.
	DipSW1-3	Not used .....Generally OFF	
	DipSW1-4	For initialization.....Generally OFF	
㉔	F1	5A time-lag fuse	For 85V

② LK-1900B series [MC-672] / LK-1900BN series [MC-672N]

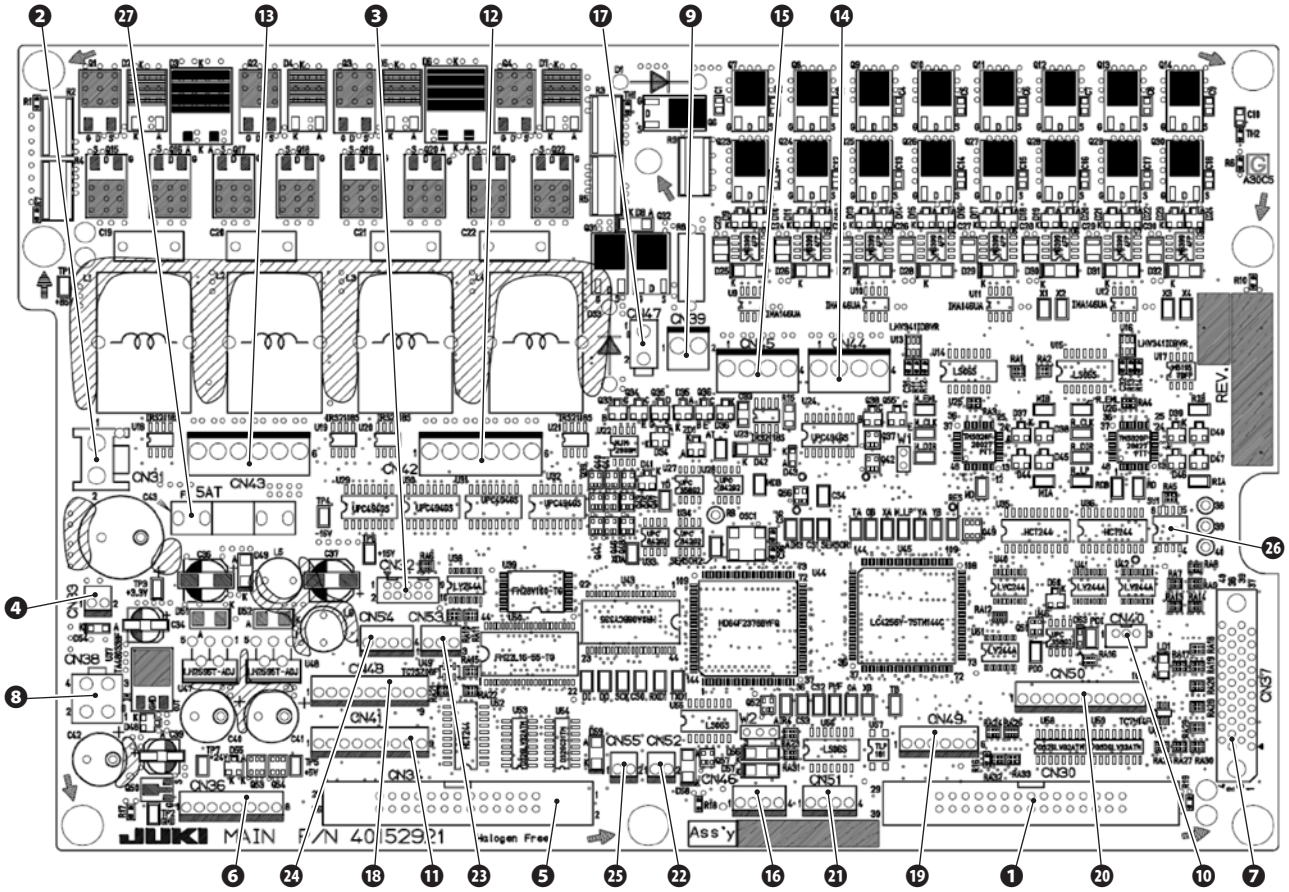
This board has been added connectors (CN52 to CN55) of air equipment to the MAIN board of standard model.



No.	Connector and other name	Connection destination, name	Remarks
❶	CN30	For machine head INT board	
❷	CN31	SDC power supply 2	
❸	CN32	Not installed	For CPU debugging
❹	CN33	Fan	
❺	CN34	Operation panel	
❻	CN36	BR interface	
❼	CN37	SDC signal	
❽	CN38	SDC power supply 1	
❾	CN39	AT solenoid	
❿	CN40	Pedal sensor	
⓫	CN41	For option pedal	Pedal switch
⓬	CN42	X-feed motor	
⓭	CN43	Y-feed motor	
⓮	CN44	Work clamp foot/thread trimming motor	
⓯	CN45	Thread clamp motor	
⓰	CN46	Air solenoid valve 1	For shorter thread remaining thread trimmer/suction nozzle drive
⓱	CN47	Material drawing solenoid (LK1901B)	
⓲	CN48	Not used	For CPU writing
⓳	CN49	Not used	For PLD writing
⓴	CN50	Not used	For DSP writing
㉑	CN51	For option	
㉒	CN52	Air solenoid valve 2	For thread waste suction air
㉓	CN53	Air cylinder sensor 1	For cylinder of shorter thread remaining thread trimmer side
㉔	CN54	Air cylinder sensor 2	For cylinder of suction nozzle side
㉕	CN55	Not installed	
㉖	DipSW1-1	For key lock setting...Generally OFF	[Initialization] Turn ON the DipSW1-4. Then turn ON the power while the pedal is depressed, return to the factory setting all such as sewing data, memory switch etc.
	DipSW1-2	Not used .....Generally OFF	
	DipSW1-3	Not used .....Generally OFF	
	DipSW1-4	For initialization.....Generally OFF	
㉗	F1	5A time-lag fuse	For 85V

③ LK-1900S series [MC-673]

Unused connectors are omitted from the MAIN board of the MC-672 series and MC-672N.

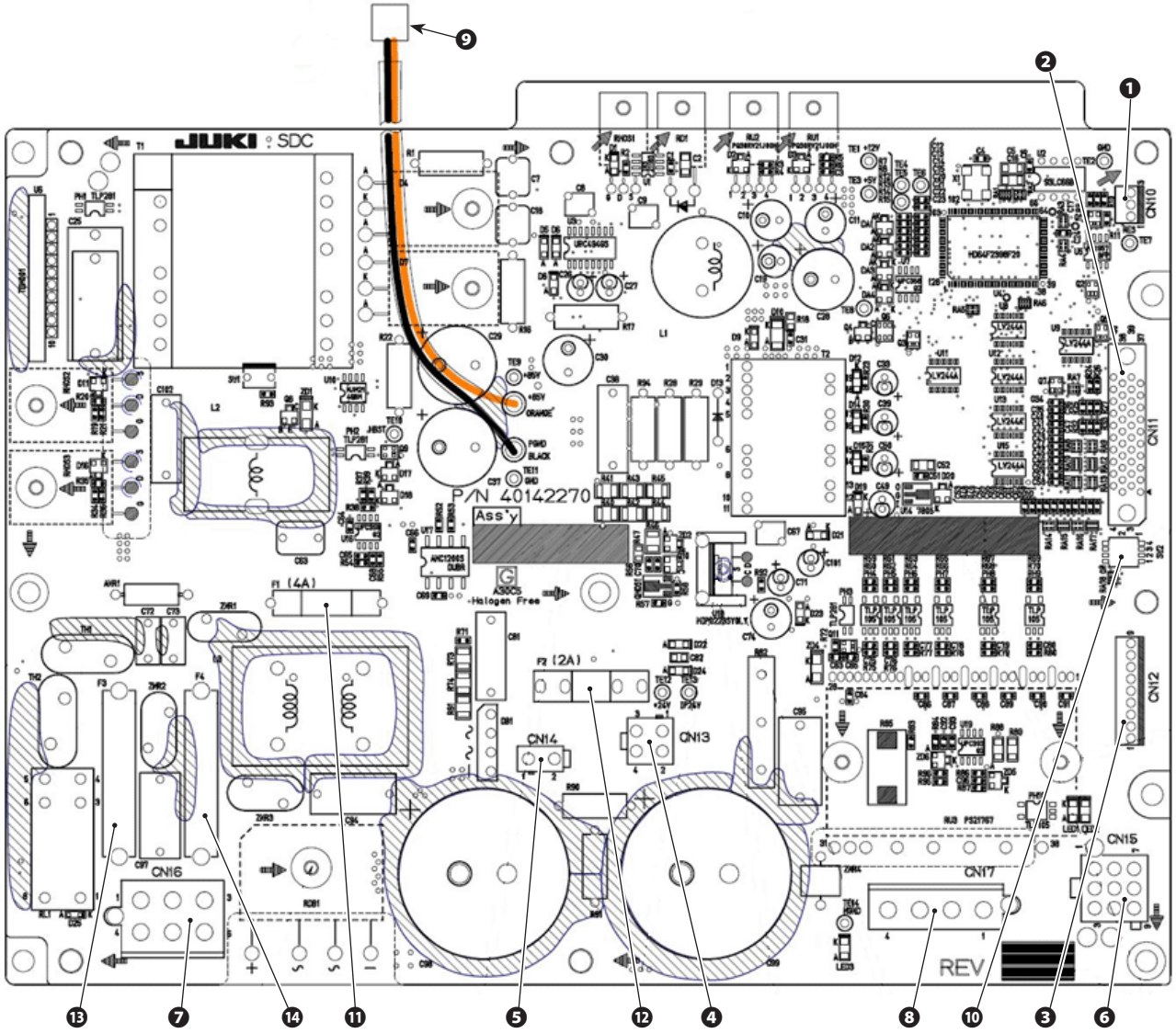


No.	Connector and other name	Connection destination, name	Remarks
❶	CN30	For machine head INT board	
❷	CN31	SDC power supply 2	
❸	CN32	Not installed	For CPU debugging
❹	CN33	Fan	
❺	CN34	Operation panel	
❻	CN36	Not installed	
❼	CN37	SDC signal	
❽	CN38	SDC power supply 1	
❾	CN39	Not installed	
❿	CN40	Pedal sensor	
⓫	CN41	For option pedal	Pedal switch
⓬	CN42	X-feed motor	
⓭	CN43	Y-feed motor	
⓮	CN44	Work clamp foot/thread trimming motor	
⓯	CN45	Not installed	
⓰	CN46	Not installed	
⓱	CN47	Disk rise solenoid	
⓲	CN48	Not used	For CPU writing
⓳	CN49	Not used	For PLD writing
⓴	CN50	Not used	For DSP writing
㉑	CN51	Not installed	
㉒	CN52	Not installed	
㉓	CN53	X origin sensor	
㉔	CN54	Y origin sensor	
㉕	CN55	Not installed	
㉖	DipSW1-1	For key lock setting...Generally OFF	[Initialization] Turn ON the DipSW1-4. Then turn ON the power while the pedal is depressed, return to the factory setting all such as sewing data, memory switch etc.
	DipSW1-2	Not used .....Generally OFF	
	DipSW1-3	Not used .....Generally OFF	
	DipSW1-4	For initialization.....Generally OFF	
㉗	F1	5A time-lag fuse	For 85V

4) SDC board (asm.)

① Standard specifications [MC-670] / LK-1900B series [MC-672] / LK-1900BN series [MC-672N]

Perform the generation of power supply and the control of sewing machine main motor in response to an instruction from MAIN board.

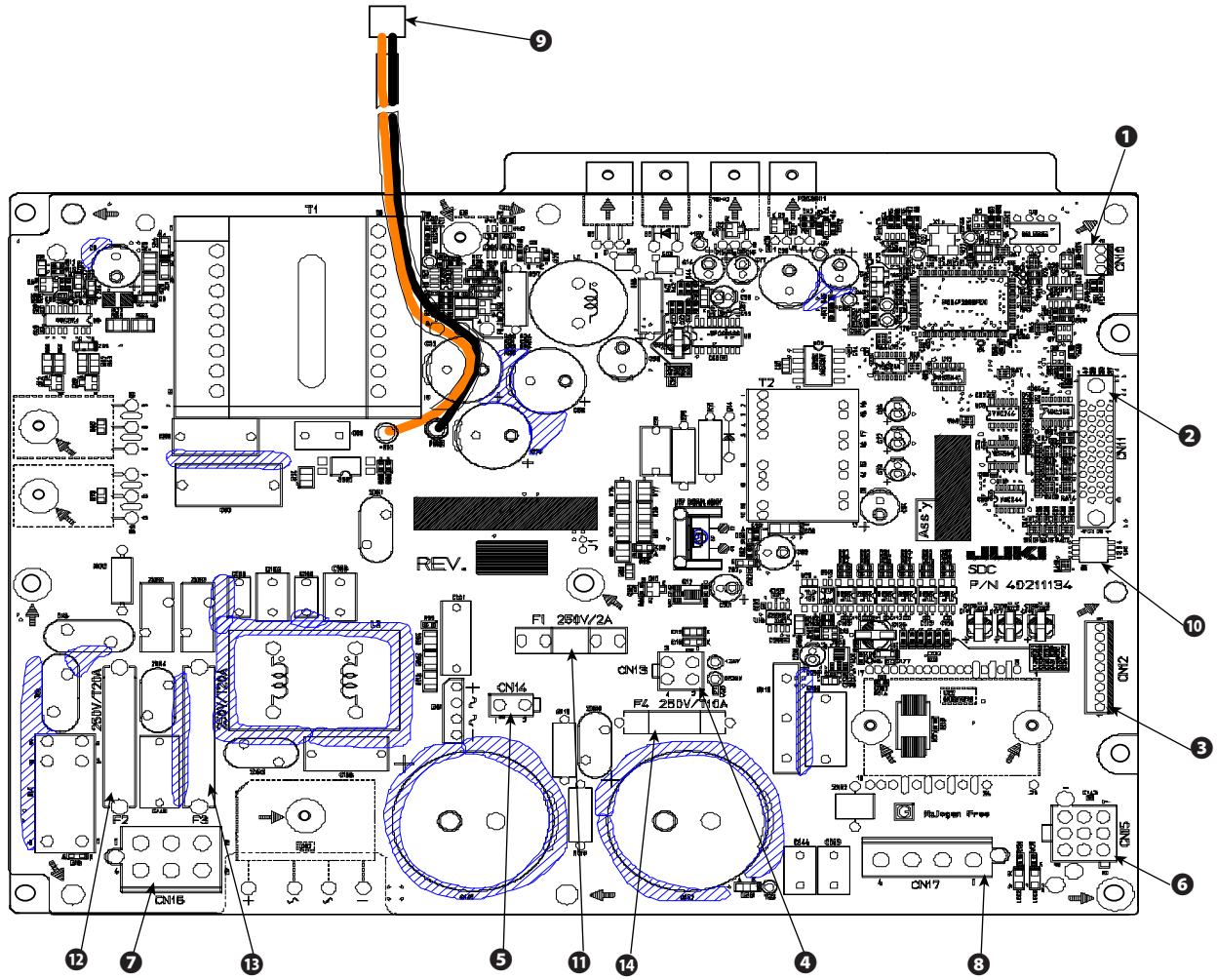


No.	Connector and other name	Connection destination, name	Remarks
❶	CN10		Not used
❷	CN11	MAIN board signal	
❸	CN12	FM1	Not used
❹	CN13	MAIN board power supply 1	
❺	CN14	Jumper connector	For 100V switching **(Note)**
❻	CN15	Main motor encoder	
❼	CN16	Power input	
❽	CN17	Main motor power	
❾	CN31	MAIN board power supply 2	
❿	DipSW2-1	Not used	Generally OFF
	DipSW2-2	Not used	Generally OFF
	DipSW2-3	Not used	Generally OFF
	DipSW2-4	Not used	Generally OFF
⓫	F1	4A time-lag fuse	For 85V...Not be replaced (Direct mounting)
⓬	F2	2A fast-blow type fuse	For 24V fuse holder
⓭	F3	20A time-lag fuse	For AC input...Not be replaced (Direct mounting)
⓮	F4	20A time-lag fuse	For AC input...Not be replaced (Direct mounting)

(Note) When connecting the jumper connector, it becomes the voltage doubler rectifier circuit. At this time, the power input must be AC100 to 120V.

② **LK-1900S series [MC-673]**

(Note) The board of 40142267 of ① and the board of 40211133 of ② are compatible. However, be sure not to mistake the combination of board and software since the software installed in each board is different.



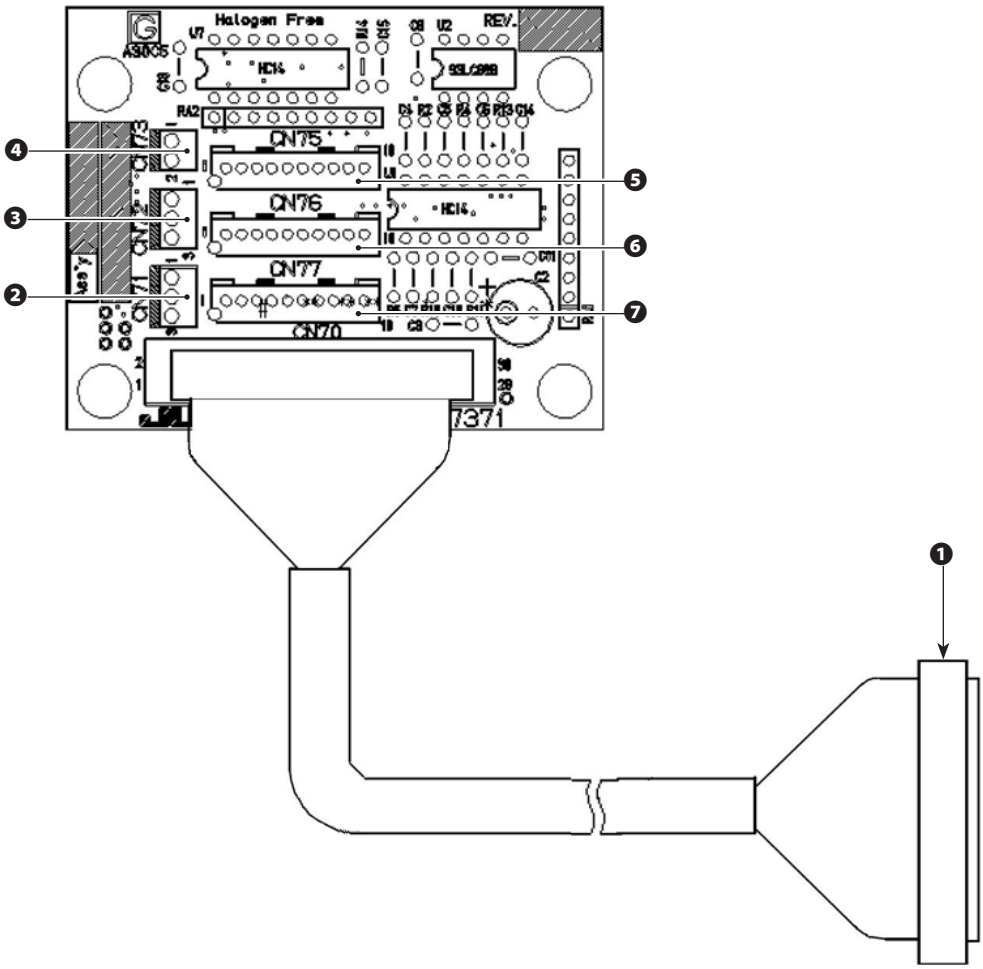
No.	Connector and other name	Connection destination, name	Remarks
❶	CN10	Not installed	Not used
❷	CN11	MAIN board signal	
❸	CN12	FM1	Not used
❹	CN13	MAIN board signal 1	
❺	CN14	Jumper connector	Unused (for switching to 100V) **(Note)**
❻	CN15	Main motor encoder	
❼	CN16	Power input	
❽	CN17	Main motor power	
❾	CN31	MAIN board power supply 2	
❿	DipSW2-1	Not used	Generally OFF
	DipSW2-2	Not used	Generally OFF
	DipSW2-3	Not used	Generally OFF
	DipSW2-4	Not used	Generally OFF
⓫	F1	2A fast-blow type fuse	For 24V fuse holder
⓬	F2	20A time-lag fuse	For DC input...Not be replaced (Direct mounting)
⓭	F3	20A time-lag fuse	For DC input...Not be replaced (Direct mounting)
⓮	F4	10A time-lag fuse	For DC input...Not be replaced (Direct mounting)

(Note) The 100 V specification is not available with the LK-1900S series.

5) INT board (asm.)

The board is attached to the rear side of machine head, relay connector of various sensors signal and EEPROM with machine head specification data is installed.

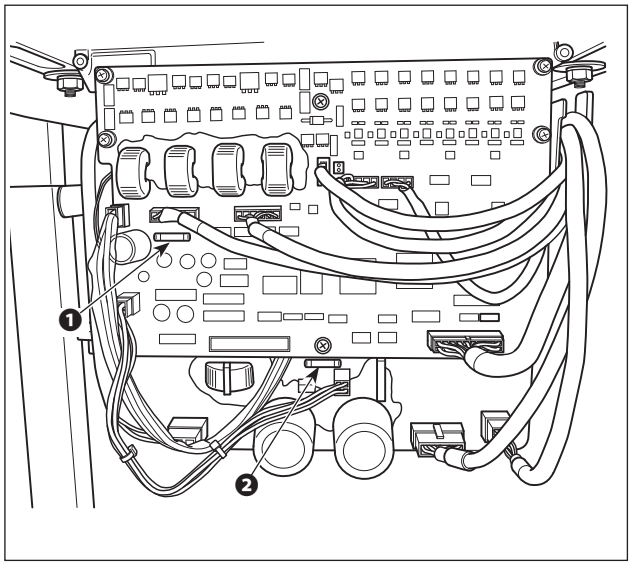
The stored data will become K241 (memory switch). Input K241 (memory switch) when INT board is replaced.



No.		Connection destination, name	Remarks
❶	CN70	For MAIN board	
❷	CN71	Work clamp foot origin sensor	
❸	CN72	Thread trimming position sensor	
❹	CN73	Machine head safety switch	
❺	CN75	X-axis motor encoder	LK-1900B Series, LK-1900BN Series
❻	CN76	Y-axis motor encoder	LK-1900B Series, LK-1900BN Series
❼	CN77	Needle thread clamp motor encoder	LK-1900B Series, LK-1900BN Series

(2) Replacing the fuse

DANGER :
1. **To avoid electrical shock hazards, turn OFF the power and open the control box cover after about five minutes have passed.**
2. **Open the control box cover after turning OFF the power without fail. Then, replace with a new fuse with the specified capacity.**



The machine uses the following 2 fuses :

MAIN board

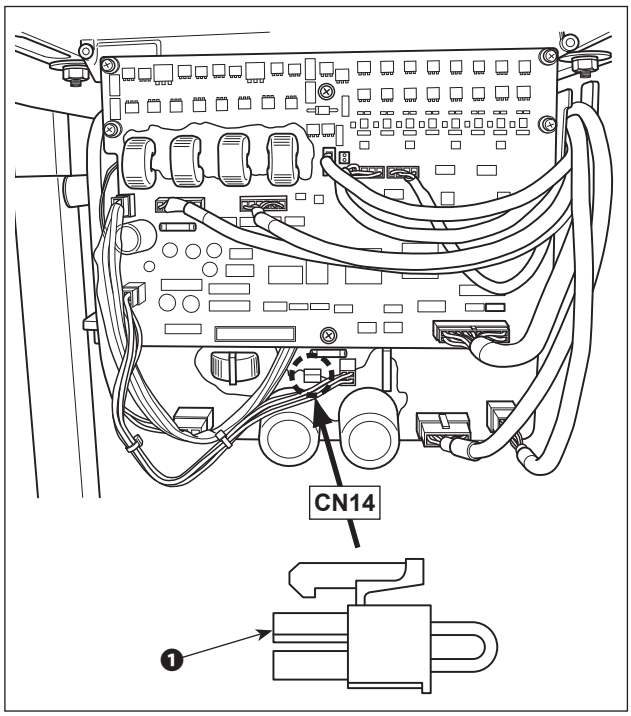
❶ For stepping motor power supply protection
5A (time-lag fuse)

SDC board

❷ For control power supply protection
2A (fast-blow type fuse)

(3) 100V specification changeover

DANGER :
To avoid electrical shock hazards, turn OFF the power and open the control box cover after about five minutes have passed.



Insert the jumper connector ❶ (M85236000A0) to CN14 (2P) of SDC board.
It can be used in AC100 to 120V power supply voltage.
In the case of 3-phase specification, supply power to black and white lines of power cord. (Red line is not connected.)

(Note) 1. When supplying the AC200V power while inserting the jumper connector ❶ , board breakage will be caused.
2. The 100 V specification is not available with the LK-1900S series.

M85236000AO components

No.	1	2
Part No.	HK034610020	HK03464000B
Part name	Connector	Female terminal
Manufacturer	Molex Incorporated	Molex Incorporated
Manufacturer model No.	5557-02R	5556PBTL

7. Maintenance

(1) Greasing parts

① When the parts for greasing and grease sealing-in are disassembled and the operational frequency seems to be higher than usual around these parts, grease should be replenished once in 1 to 2 years.

② Recommendable grease

This sewing machine uses 3 types of grease as specified below. The recommendable brands of grease are listed in "7.-(2) Parts to which grease is applied." According to this information, replenish the most applicable grease to these parts.

* **Use ❶ Lithium Type Consistency No. 2 for the parts where "Grease" is simply specified in "7.-(2) Parts to which grease is applied"**.

❶ Penetration No. 2 lithium grease (Grease)

This type of grease is used in general sliding parts.

Maker name	Brand name
Esso	Barch L1002
Shell	Albania EP-2
JX Holdings, Inc.	Epinok AP2 Lisonix 2
Idemitsu Kosan Co., Ltd.	Coronex 2

❷ Unirex N3 (Grease D) ····· Used for the feeding gear block.

· 10g tube JUKI Part No.: 13525506

❸ JUKI Grease A ····· Used for high-speed sliding parts and their peripheral parts.
Used, in particular, for the specific areas with highly loaded parts.

Important: this grease must be replenished at the specified intervals of period, according to "10.-(5) Grease-up procedures for the specified position."

· 10g tube JUKI Part No.: 40006323

· 100g tube JUKI Part No.: 23640204

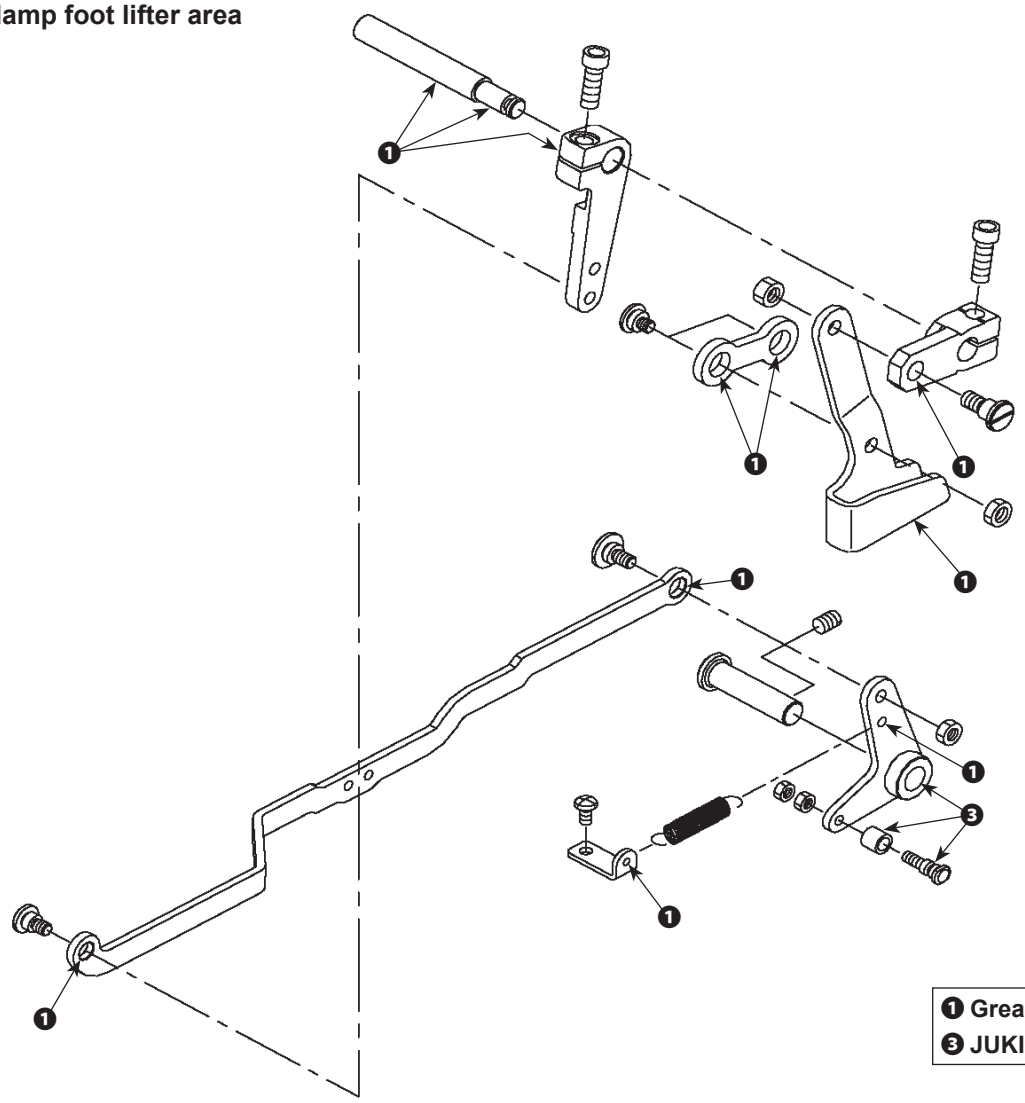
③ Method of greasing

If no grease pump is available, fill a plastic oilcan with grease. Otherwise, an injector without a needle can be conveniently used.

· An injector to be used exclusively for coating / JUKI part No.: GDS01007000

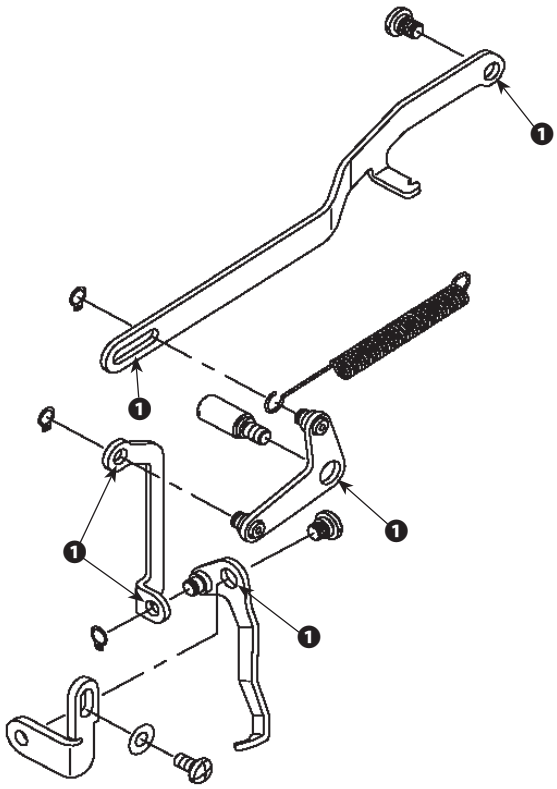
(2) Parts to which grease is applied

① **Work clamp foot lifter area**



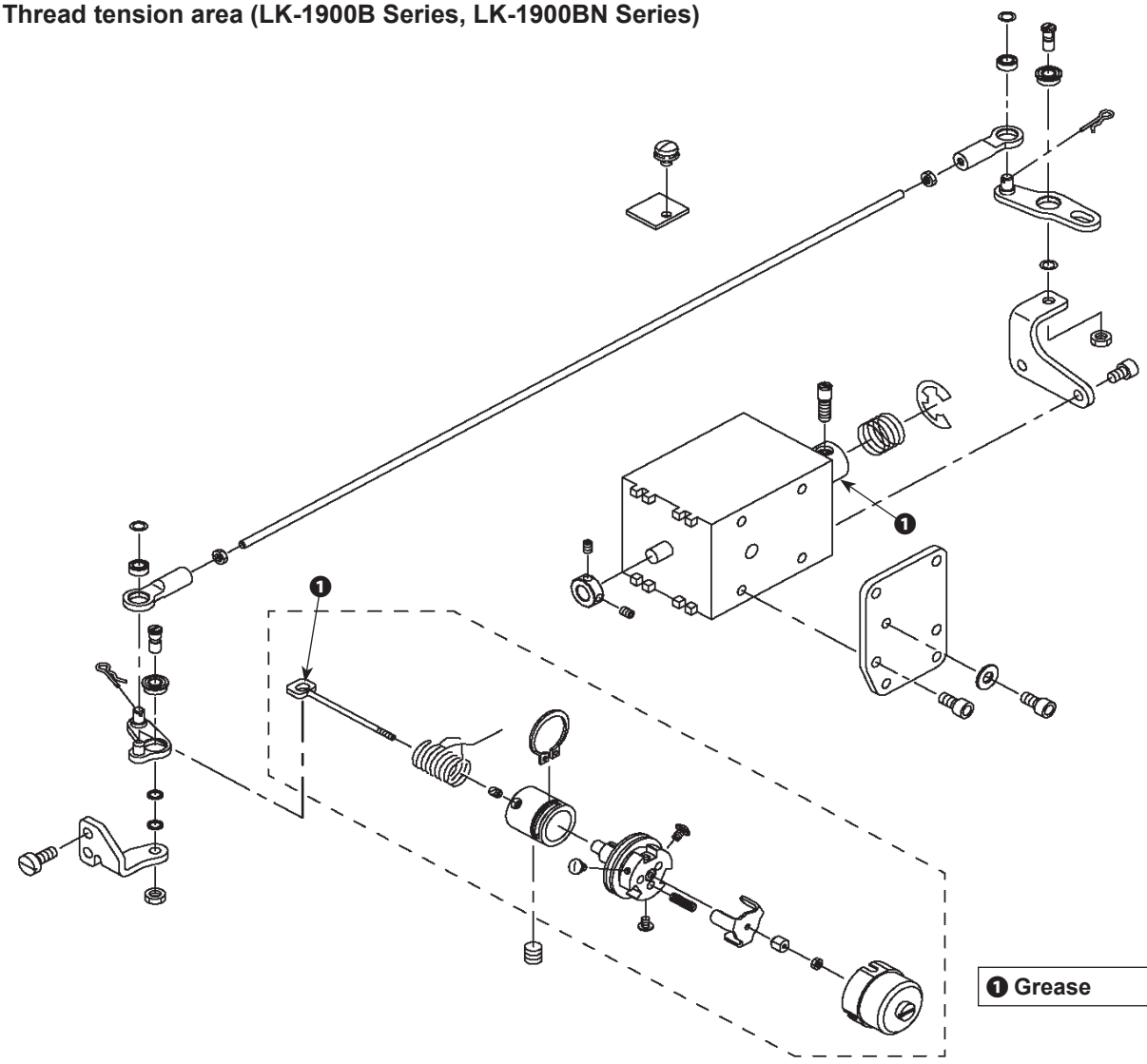
❶ Grease
❸ JUKI Grease A

② **Wiper area**



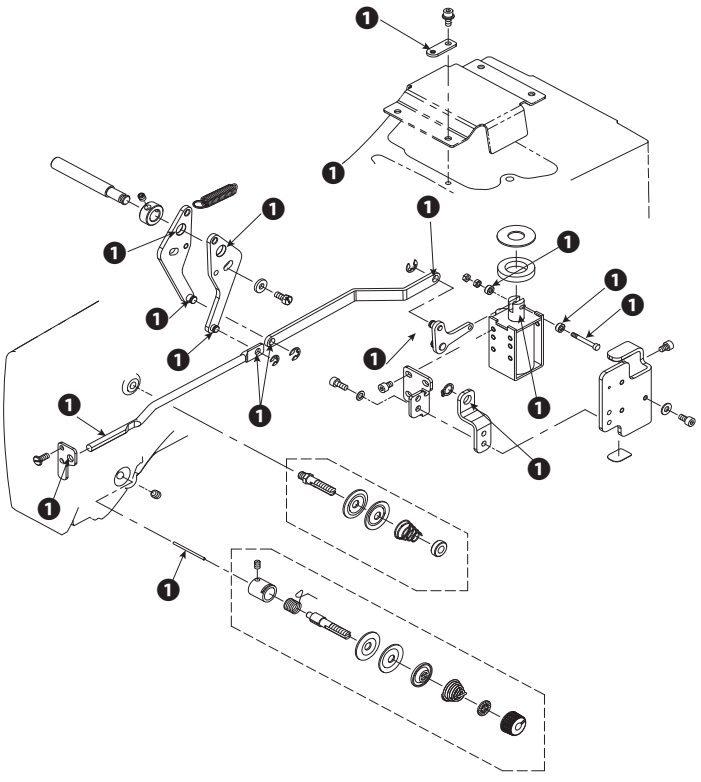
❶ Grease

③ Thread tension area (LK-1900B Series, LK-1900BN Series)



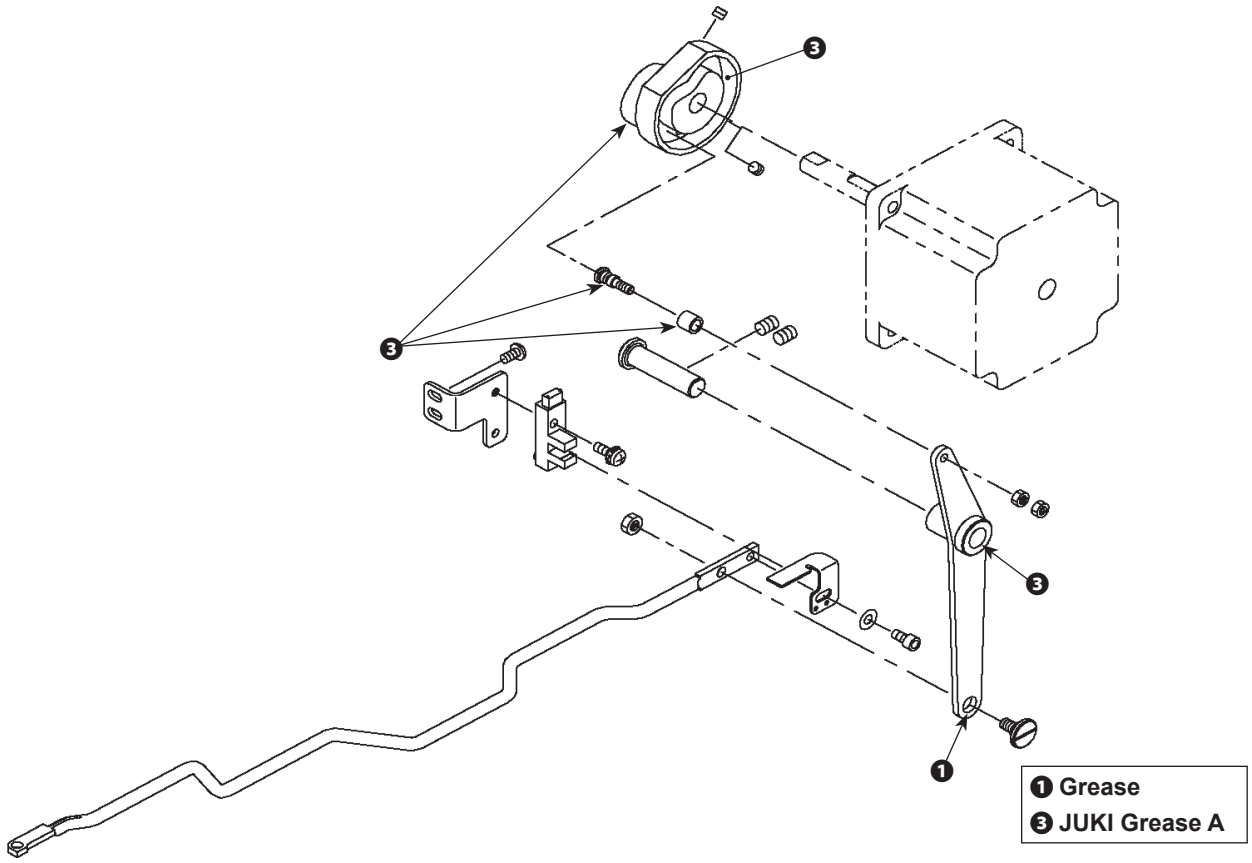
❶ Grease

④ Thread tension area (LK-1900S Series)

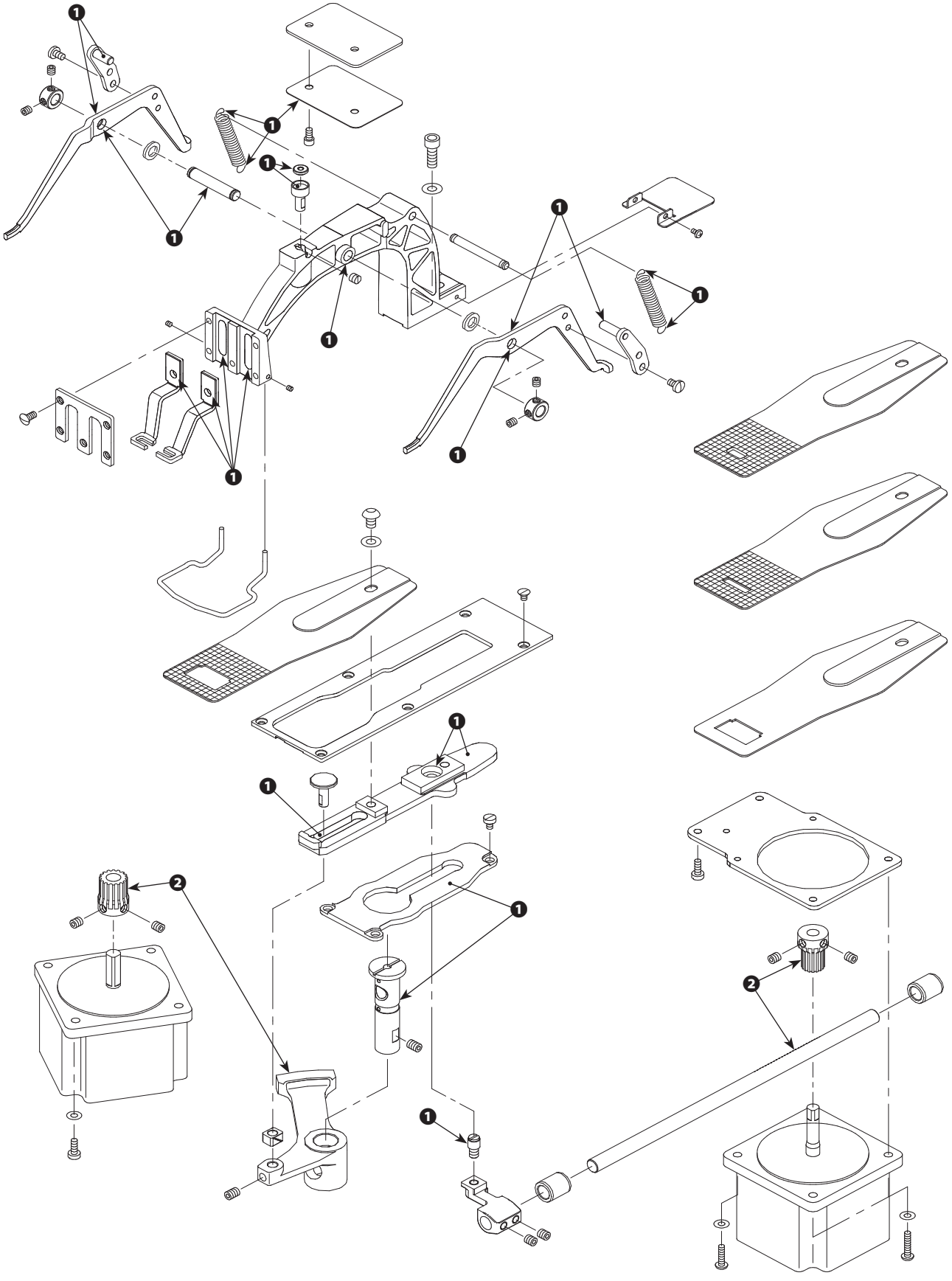


❶ Grease

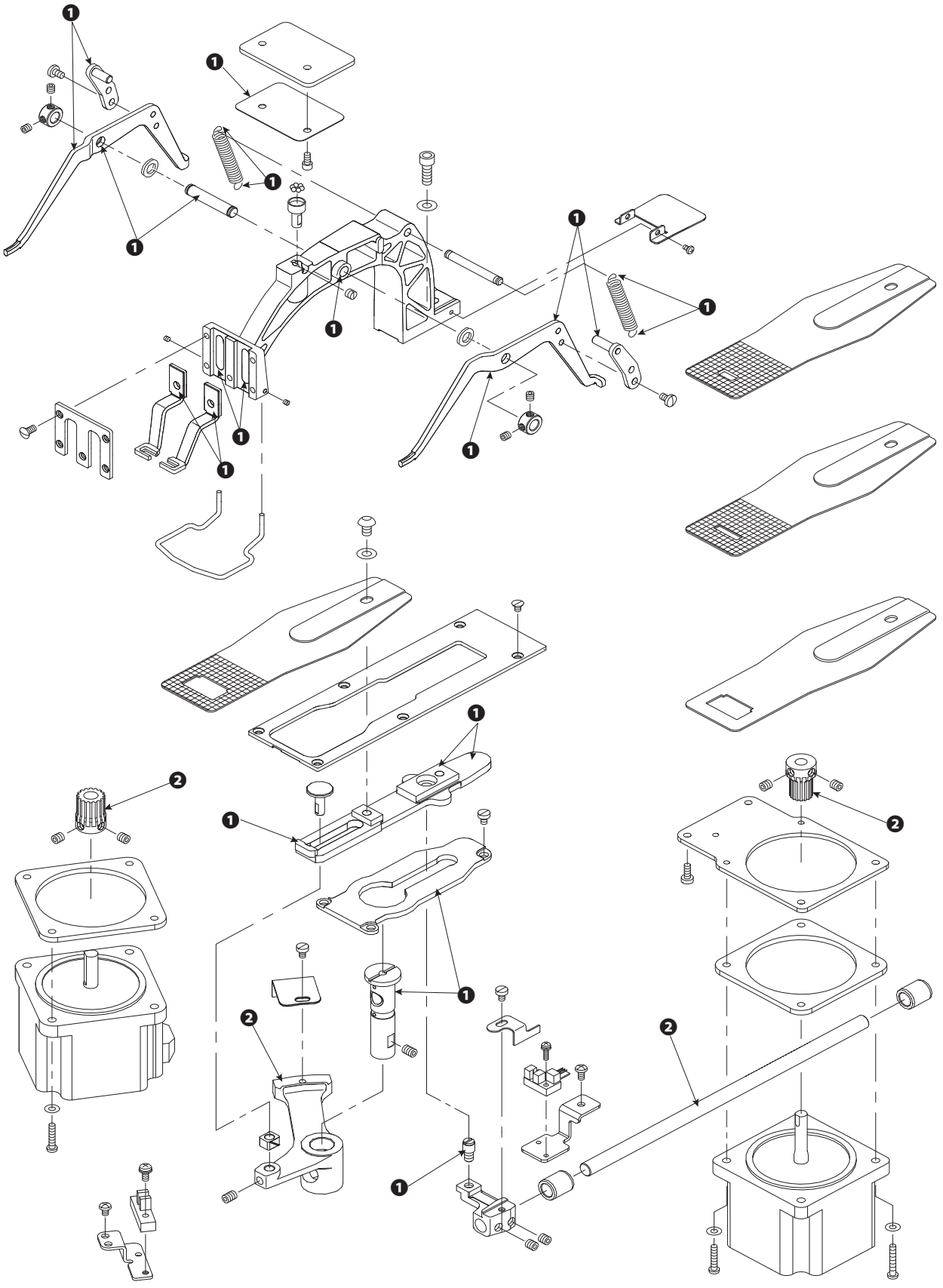
⑤ Thread trimmer area



⑥ Feed area (LK-1900B Series, LK-1900BN Series)

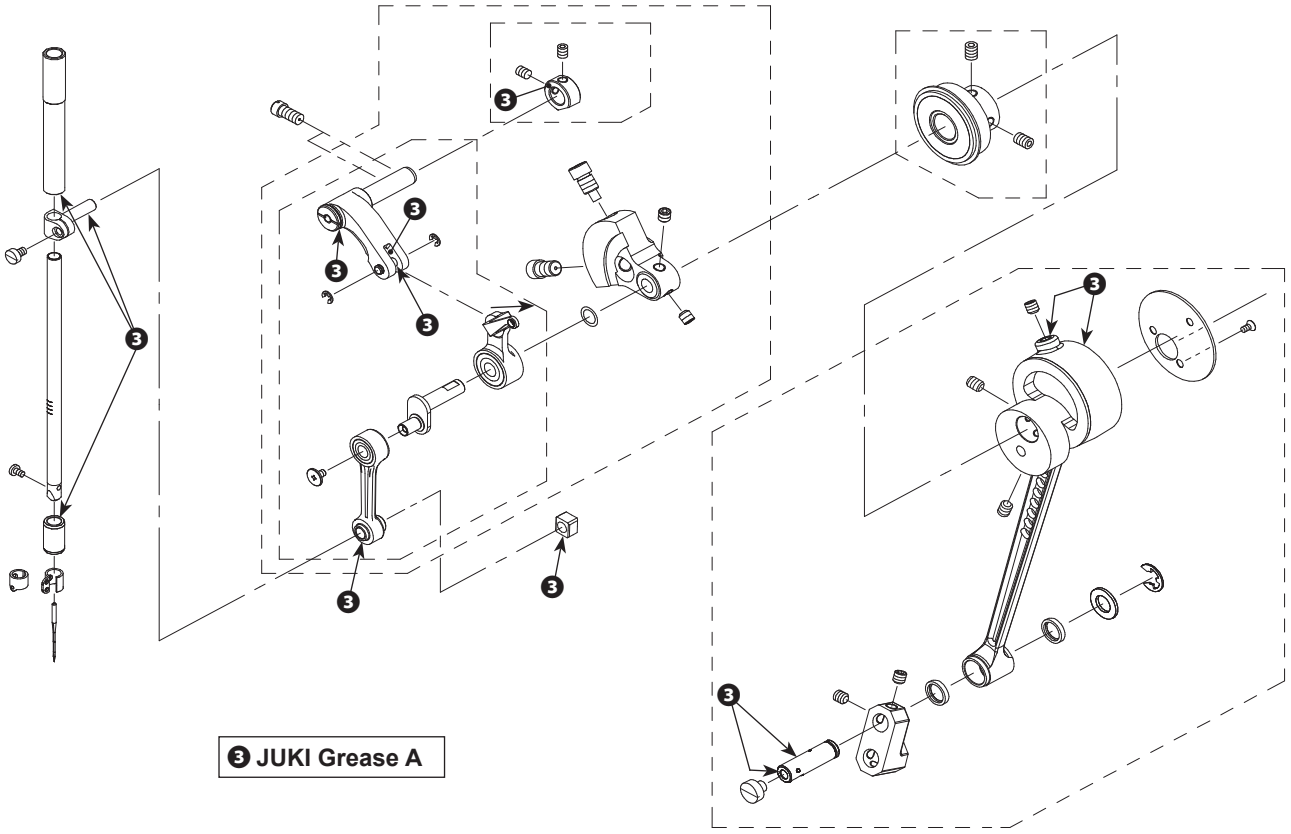


⑦ Feed area (LK-1900S Series)

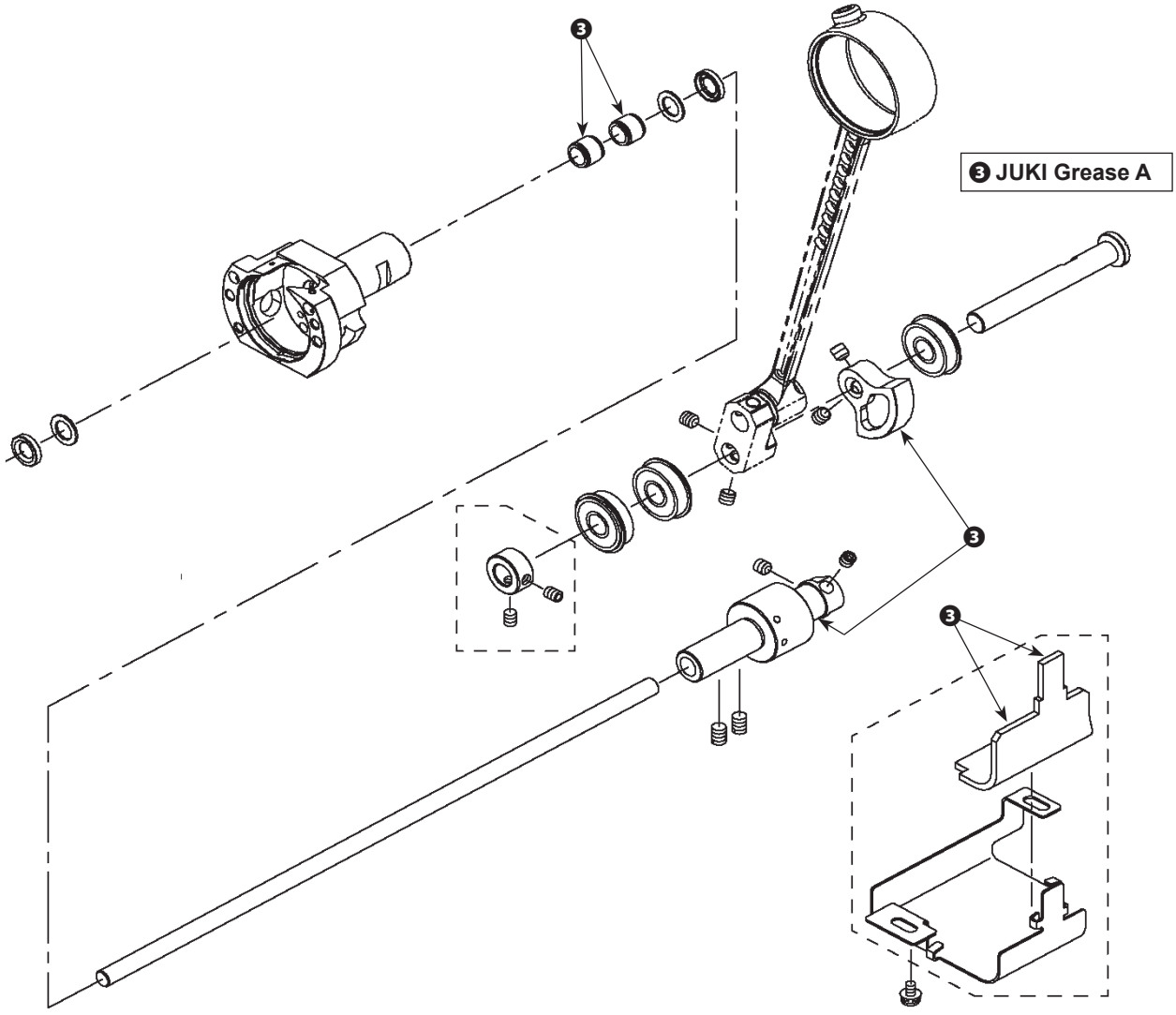


❶ Grease
❷ Grease D

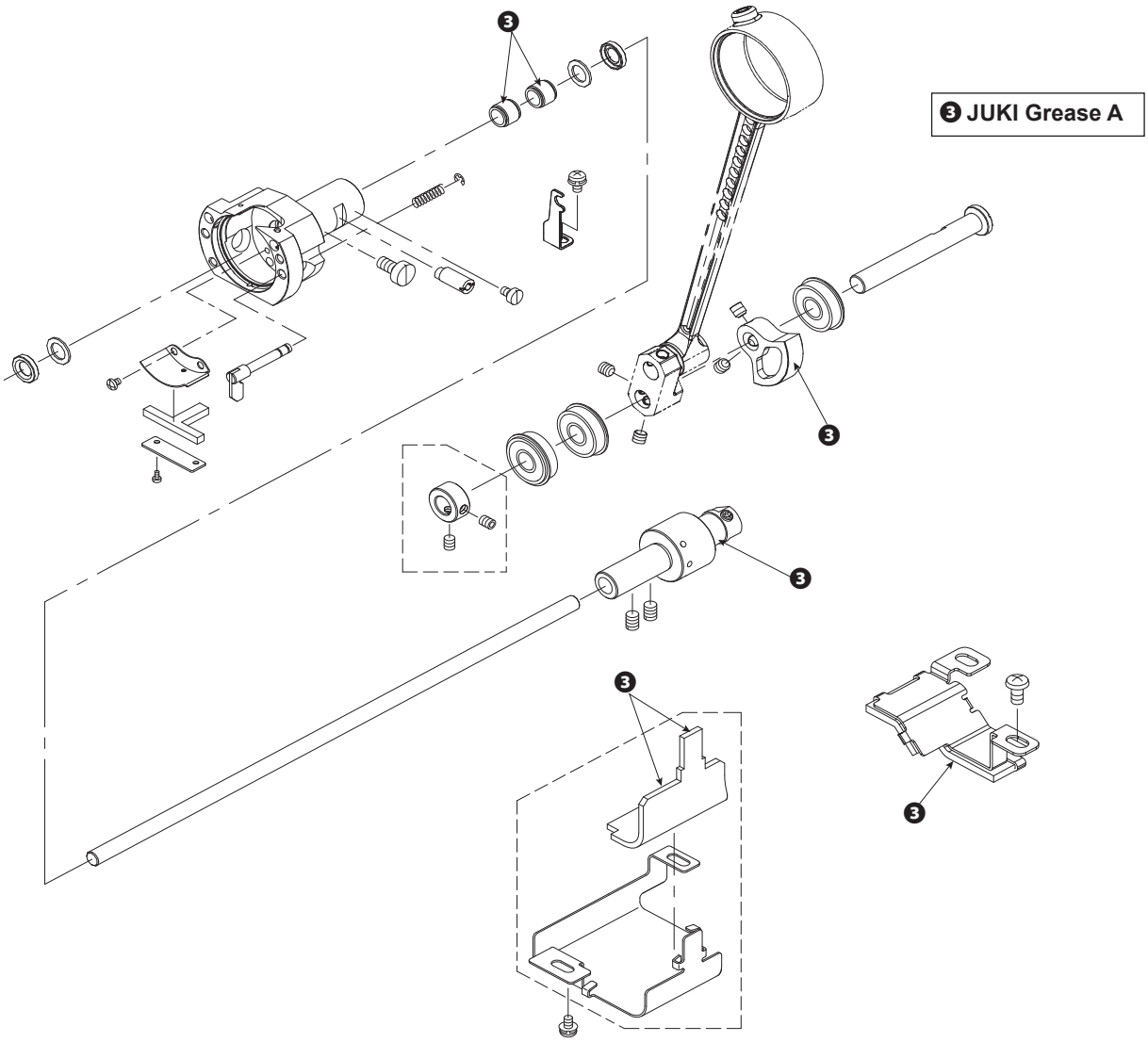
⑧ **Needle bar and main shaft area**



⑨ **Lower shaft area (LK-1900B Series, LK-1900BN Series)**

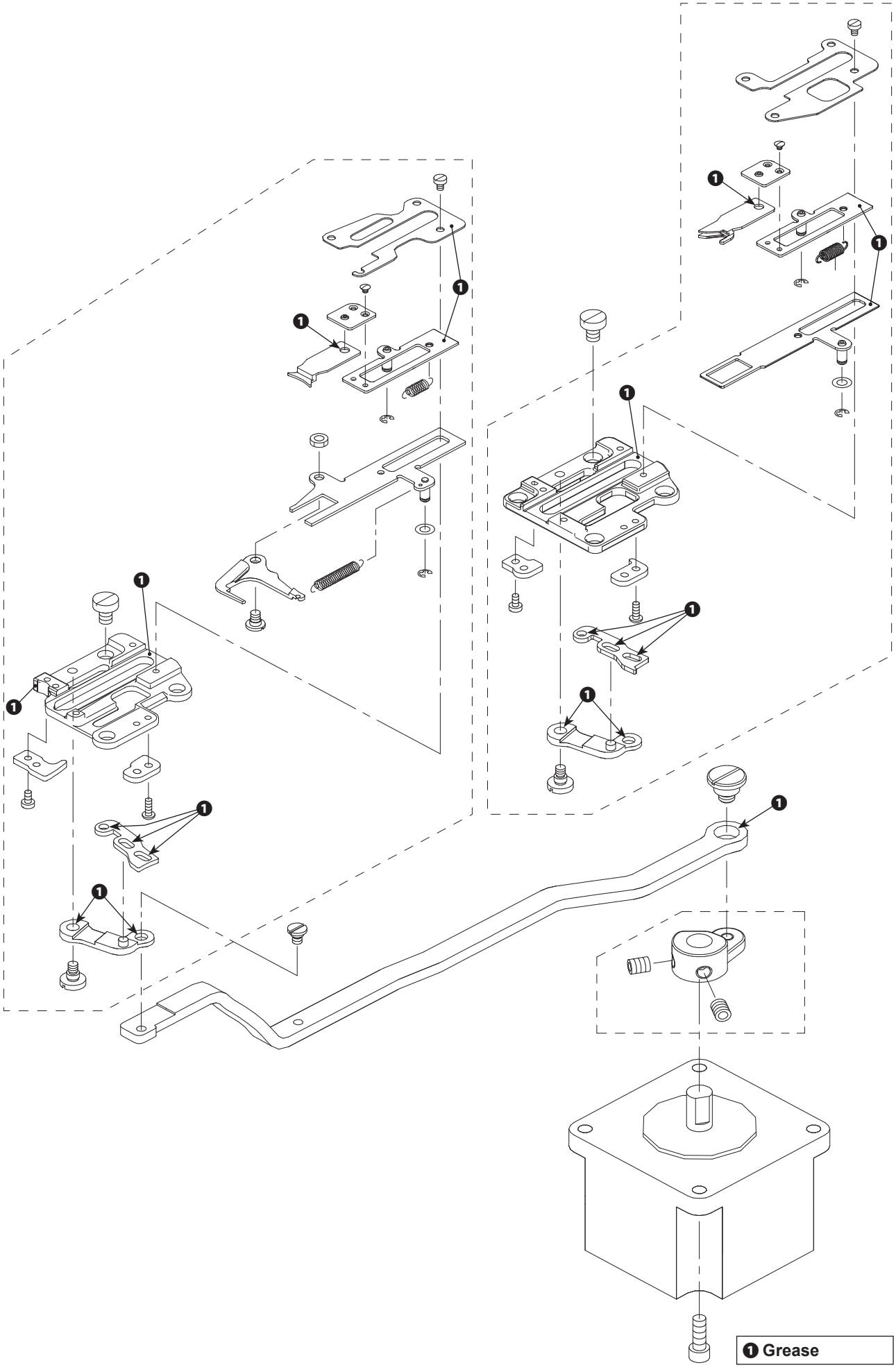


⑩ Lower shaft area (LK-1900S Series)

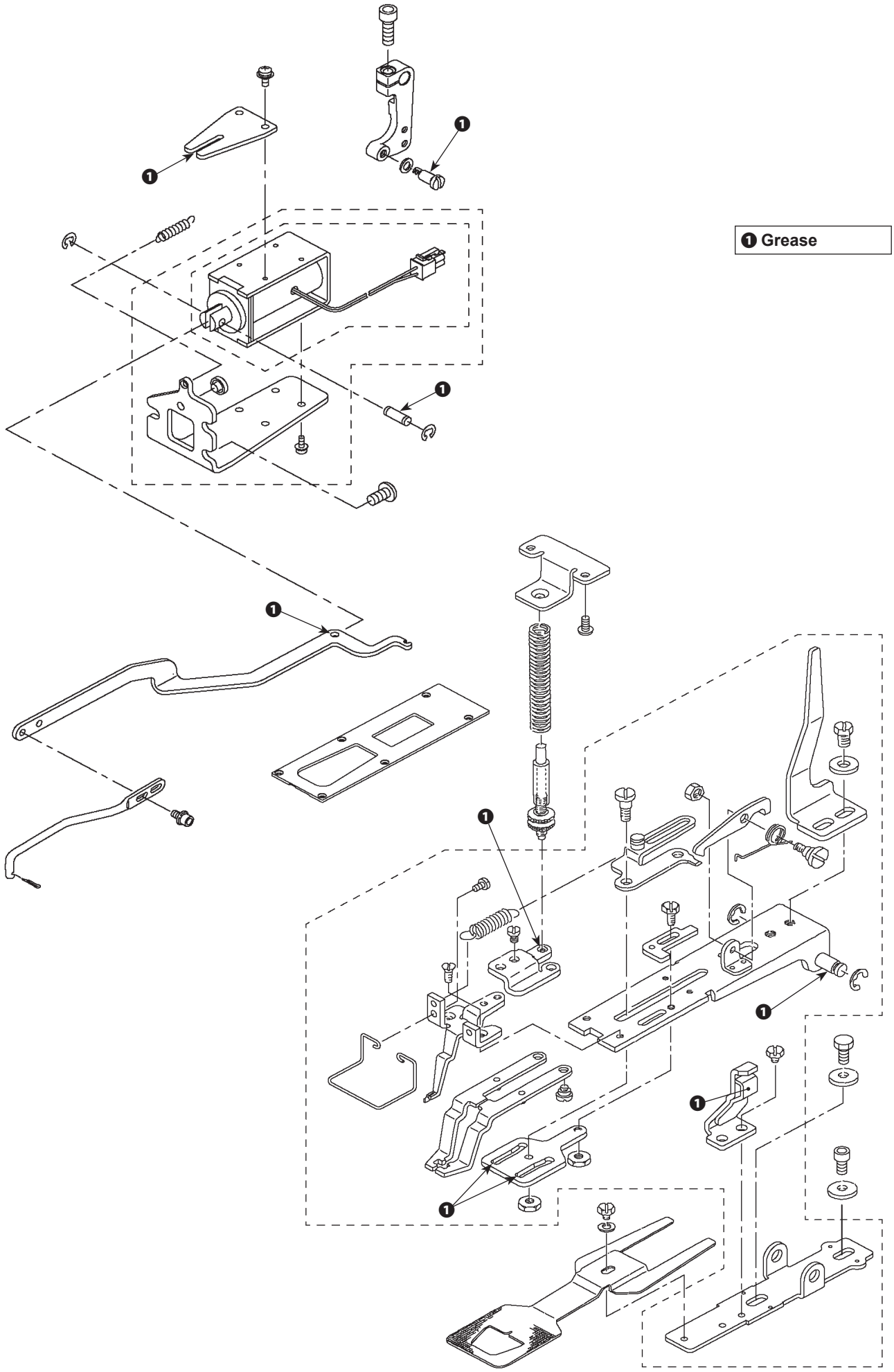


⑪ Needle thread clamp mechanism area

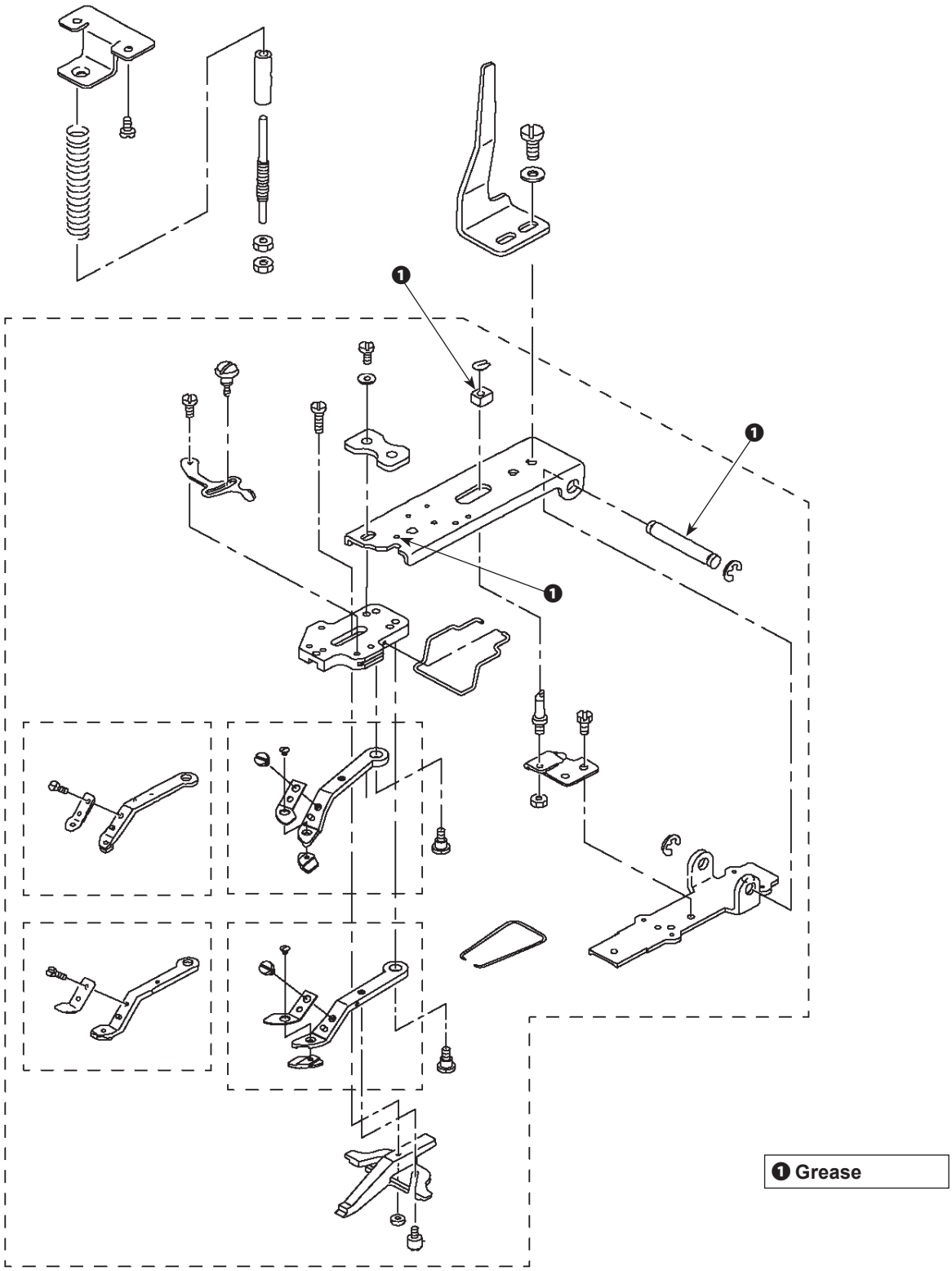
(For LK-1900BB, 1903BB, 1900BNB, 1903BNB)



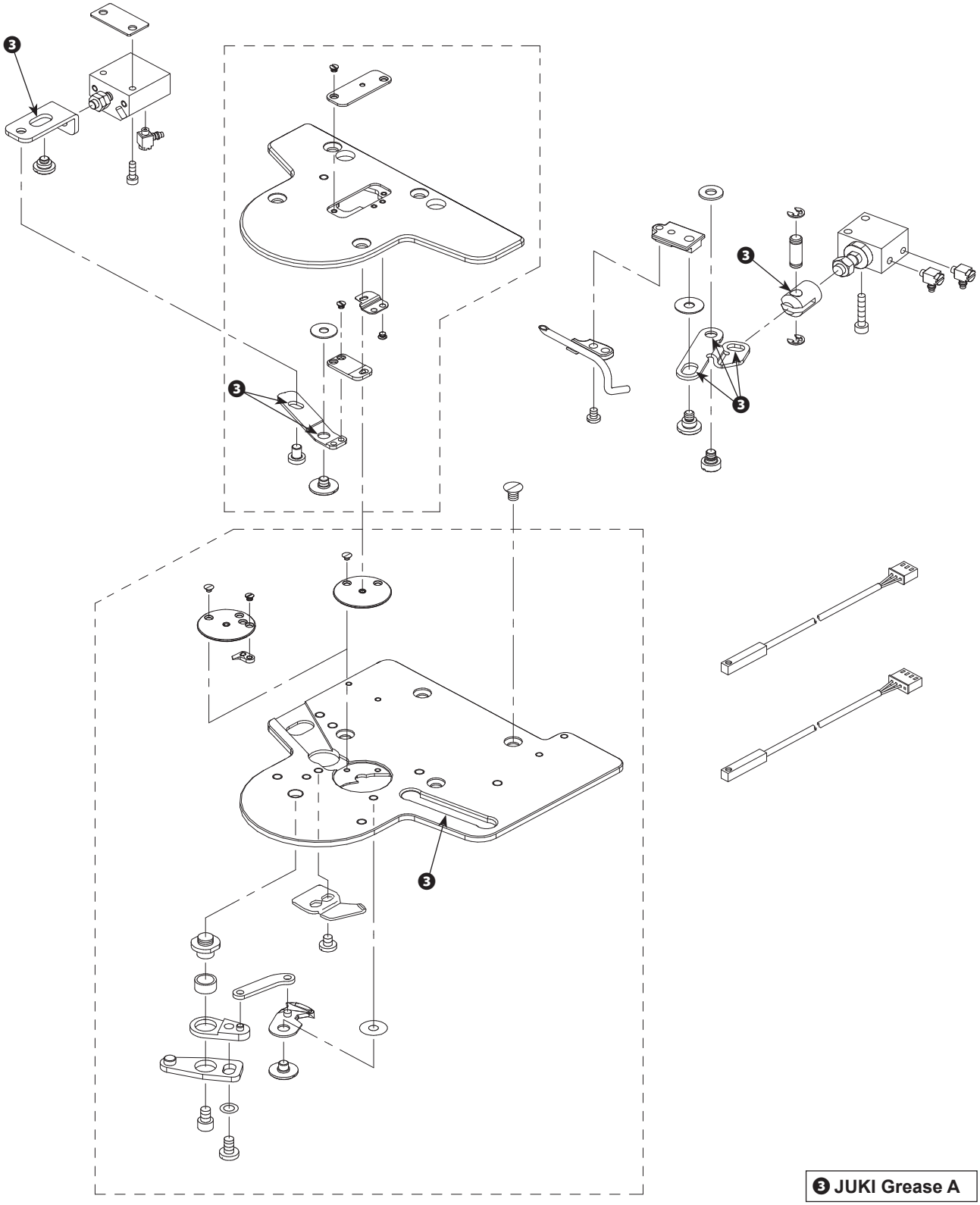
⑫ LK-1901B relations



⑬ LK-1903B relations



⑭ LK-1900BB, 1903BB, 1900BNB, 1903BNB relations

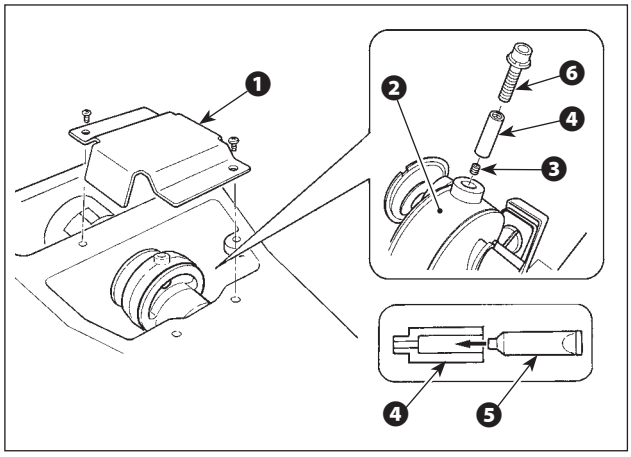


(3) Grease-up procedures for the specified position

When sewing operation is repeated for a certain time period, Error Code No. E220 is displayed at the operation panel when the power supply is turned ON. This error code is used for the indication of the grease replenishing time for the specified parts. When you see this error code, replenish the grease specified below, without fail. After greasing, call the memory switch U245 and set up “0” with the reset key.
Even after the display of Error Code No. E220, this error code can be canceled by pressing the reset key and the machine can be used continuously. Since then, however, this Error Code No. E220 is displayed each time the power supply is turned on.
When the sewing machine is used further for the specified time period after the display of Error Code No. E220, Error Code No. E221 is then displayed. In this case, this error code cannot be canceled even though the reset key is pressed, and the sewing machine cannot work anymore.
Therefore, when this Error Code No. E221 is displayed, replenish the grease, without fail, to the parts specified below. Start the memory switch and set up the Memory switch U245 at “0” with the reset key.

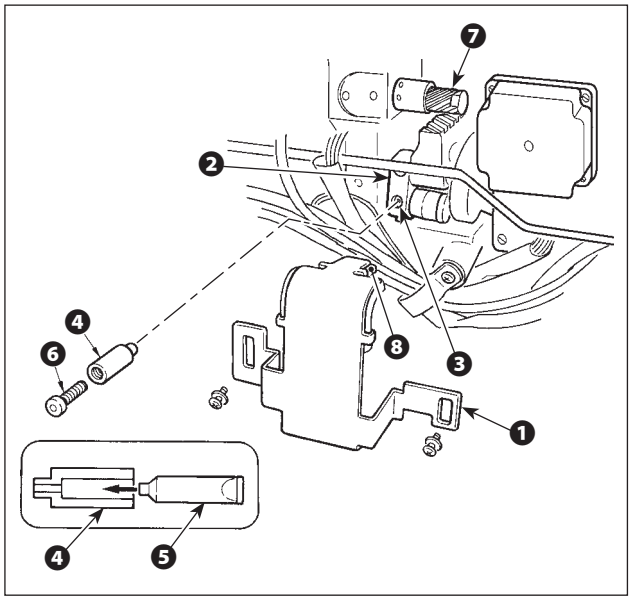
(Note) 1. If the memory switch No. 245 is not reset at “0” after the replenishment of grease, Error No. E220 or No. E221 will be displayed again.
2. For the replenishment of grease to the parts specified below, use the attached JUKI Grease A (Part No. 40006323). If any grease other than the specified item is replenished, this can be a cause of destruction of parts.

1) Replenishing the eccentric cam section with grease



1. Open crank rod cover ❶ .
2. Remove setscrew ❸ from the grease inlet cover located at periphery of crank rod ❷ .
3. Fill coupling ❹ with grease through JUKI Grease A tube ❺ .
4. Sink screw ❻ supplied with the unit into the coupling to add the grease.
5. After adding the grease, securely tighten setscrew ❸ which has been removed.

2) Replenishing the oscillator pin section with grease



1. Tilt the machine head and remove the grease cover ❶ .
2. Remove setscrew ❸ in oscillator gear ❷ .
3. Fill coupling ❹ with grease through JUKI Grease A tube ❺ .
4. Sink screw ❻ supplied with the unit into the coupling to add the grease.
5. Securely tighten setscrew ❸ which has been removed after replenishing with the grease.
6. Install grease cover ❶ at the location where felt ❽ comes in contact with gear ❼ .

(Note) Do not strongly press felt ❽ against gear ❼ . It can cause a moving failure.

(4) Initialize

Turn off the sewing machine beforehand

1. Set DipSW1-4 on the main board ON.
2. Turn on the power while stepping on the front part of the pedal.
   The initialization is complete when the language selection is displayed.
3. Turn off the power, and then turn off DipSW1-4 on the main board.

(5) Version update / For emergency

It is possible to perform the version update only by launching the software without turning on the LK-1900S series, LK-1900B series or LK-1900BN series.

This procedure is only for emergency. Normally, follow the procedure described in “4.-(6) How to use the communication functions”.

1. Save only the software to be updated in a USB flash drive. Follow the procedure described in “4.-(6) How to use the communication functions” to save the file (software).

(Note) If multiple software are saved, version update may not be performed correctly.

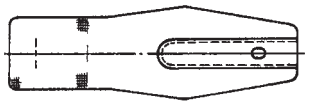
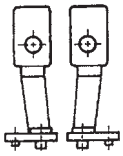
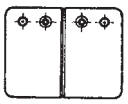
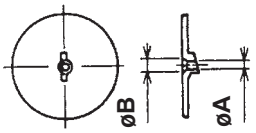
2. Make sure that the power is off and connect the USB flash drive containing the saved software to the panel.

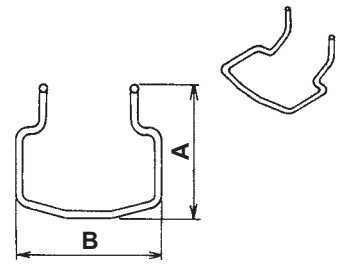
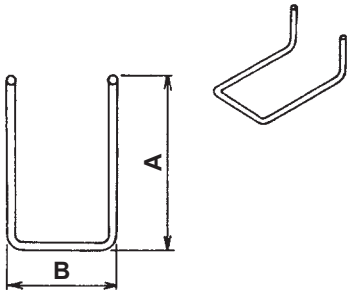
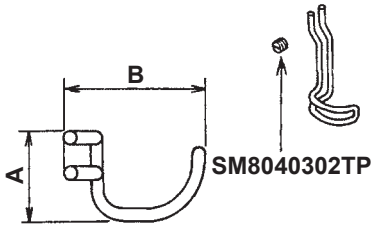
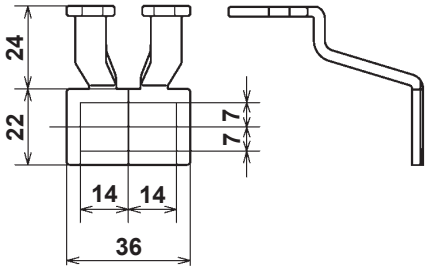
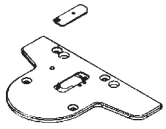
3-1. Turn on the power while holding down the P4 on the panel.
   Version update of the software saved in the USB flash drive will start if software is for the main unit.

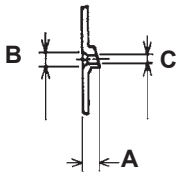
3-2. Turn on the power while holding down the P3 on the panel.
   Version update of the software will be stated if the software saved in the USB flash drive is for the panel.

8. Optional features

(1) Table of optional parts

Name of parts	Type	Part No.	Remarks
Feed plate blank  **t = 1.2**	Without knurl / processed Sewing area lengthwise 20 × crosswise 40	14120109	
	With knurl / processed Sewing area lengthwise 20 × crosswise 40	14120307	
	Without knurl / stainless steel Sewing area lengthwise 20 × crosswise 40	14120505	t = 0.5
	Without knurl / processed Sewing area lengthwise 30 × crosswise 40	40021855	
	Without knurl / without processing Sewing area lengthwise 30 × crosswise 40	40021856	
	Without knurl / stainless steel Sewing area lengthwise 30 × crosswise 40	40021857	t = 0.5
	With knurl / processed Sewing area lengthwise 30 × crosswise 40	40021858	
	With knurl / without processing Sewing area lengthwise 30 × crosswise 40	40021859	
Work clamp foot slide plate (asm.) 		14121263	Slide plate for work clamp foot blank
Work clamp foot blank  **t = 3.2**	With knurl / Processed (right) Sewing area lengthwise 20 × crosswise 40	14121701	
	With knurl / Processed (Left) Sewing area lengthwise 20 × crosswise 40	14121800	
	With knurl / Processed (right) Sewing area lengthwise 30 × crosswise 40	40021851	
	With knurl / Processed (Left) Sewing area lengthwise 30 × crosswise 40	40021852	
	With knurl / without processing (right) Sewing area lengthwise 30 × crosswise 40	40021853	
	With knurl / without processing (Left) Sewing area lengthwise 30 × crosswise 40	40021854	
Needle hole guide 	A=1.6 B=2.6 With relief slit	B2426280000	S type
	A=1.6 B=2.0 Without relief slit	D2426282C00	F and M types
	A=2.3 B=4.0 Without relief slit	14109607	H and W types
	A=2.7 B=3.7 Without relief slit	D2426MMCK00	For extra heavy-weight material

Name of parts	Type	Part No.	Remarks
Finger guard (1) 	A=56.5 B=64	13533104	
	A=59 B=74	13548300	For large size bar-tacking
Finger guard (2) 	A=66.5 B=43	13573407	For length-wise bar-tacking
Finger guard (3) 	A=21.5 B=35.5	14120000	For specially ordered work clamp foot
Work clamp foot blank 	With knurl / processed (right)	40021869	
	With knurl / processed (left)	40021870	
High-voltage applicable	High-voltage transformer asm.	40005427	
Option pedal	1 pedals PK57 PK57 conversion cable asm. 2 pedasl Tandem pedal Pedal switch conversion Cable asm.	 GPK570010B0 M90135900A0 M85205800A0 M90125900A0	
Throat plate asm.		40162730	00BB type
		40162729	03BB type

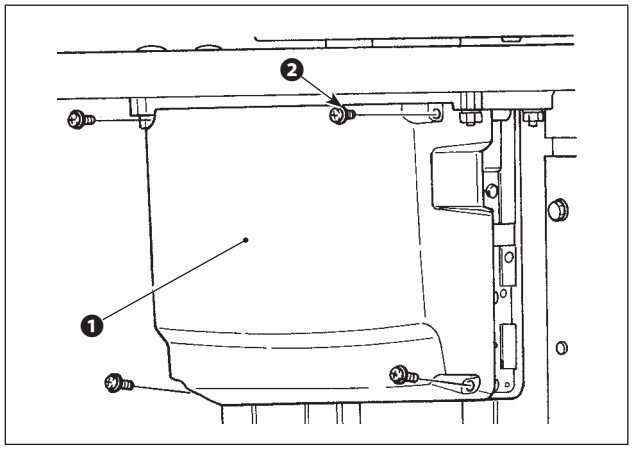
Name of parts	Type	Part No.	Remarks
Needle hole guide  		40177342	00BB type
		40177343	03BB type
Simplified short tail throat plate unit	S type H type	40193911 40194944	LK -1900B/BN/Supported * Shorter-thread remaining function only. **(Note) When the bird's nest/ function is needed, prepare LK-1900BB/BNB.**
Button sewing clamp kit (Vertical button sewing device)		72005824	For Lk-1900B/BN/S * It is necessary to set K241.
Bobbin thread clamp plate		MAZ10404000 (X1) SS7090410SP (X2)	For LK-1900S series Correspondence to an entanglement from the 1st stitch

(2) Connection of the optional pedal

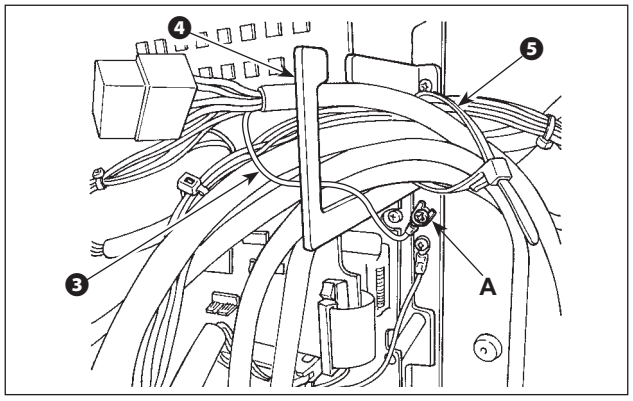
1) PK-57 pedal

DANGER :
To prevent personal injuries caused by electric shock hazards or abrupt start of the sewing machine, carry out the work after turning OFF the power switch and a lapse of 5 minutes or more. To prevent accidents caused by unaccustomed work or electric shock, request the electric expert or engineer of our dealers when adjusting the electrical components.

The hand switch is provided on the standard type machine.
To use the optional foot pedal switch (part number : GPK570010B0), connect it in the procedure described below. When installing the foot pedal switch, the foot pedal switch junction cable (asm.) (part number : M90135900A0) is also required.
Refer to "8.-(1) Table of the optional parts".

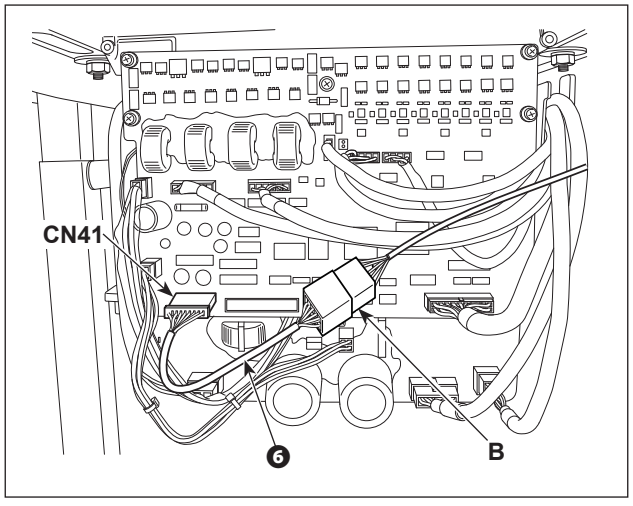


① Loosen the 4 setscrews ❷ in the control box to remove cover ❶ .



② Fix earthing wire ❸ of the foot pedal switch at location **A** of the control box.

(Note) Pass the earthing wire ❸ through cord exit plate ❹ . If not, it can be caught under the cover when closing it.



③ Connect foot pedal switch junction cable ❻ to the foot pedal switch cable **B** and connect the opposite side of the junction cable to CN41 connector.

④ Loosen cable clip band ❺ . Fix the foot pedal switch cables (excluding earthing wire ❸) by means of cable clip band ❺ together with other related cables.

DANGER :
It is very important to carefully connect the cables to the correct connectors on the board. Wrong connection poses a great risk.

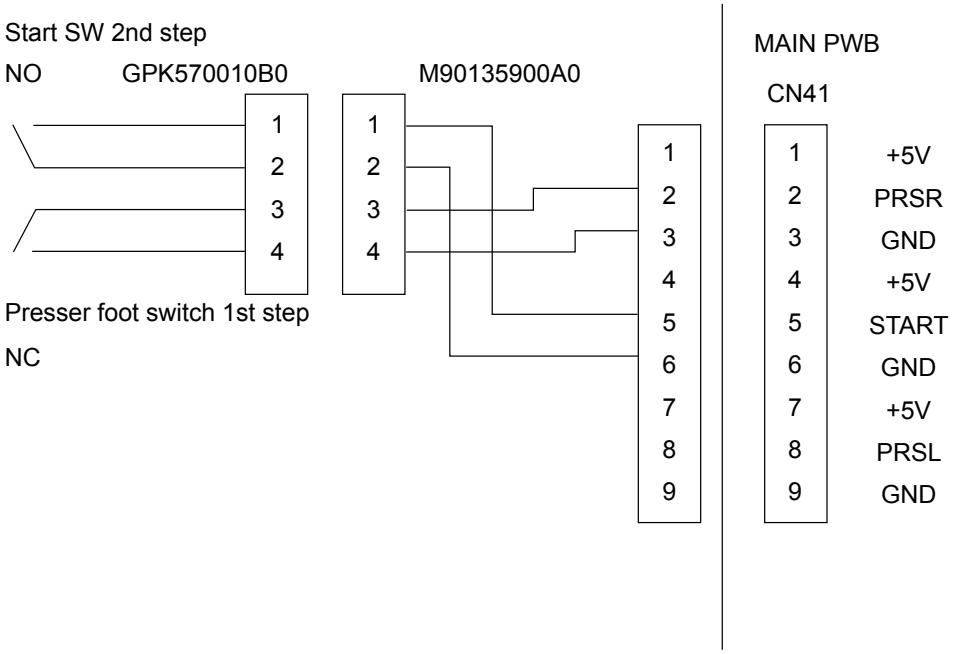
⑤ Set the memory switches as follows.

Select the framed items.

U019	**Selection of pedal** 0 : Standard pedal 1 : Standard pedal (2-step stroke) 2 : Optional pedal 3 : Optional pedal (2-step stroke)
U020	**Slection of start pedal** : Standard pedal : Optional pedal
U024	**Optional pedal 1 operation** : OFF when depressing pedal again : OFF when detaching from pedal

When the pedal is depressed to the middle step, the presser foot comes down.
When it is released, the presser foot goes up.
When the pedal is fully depressed, the sewing machine starts sewing.

⑥ Wiring diagram



2) 2-Pedal unit

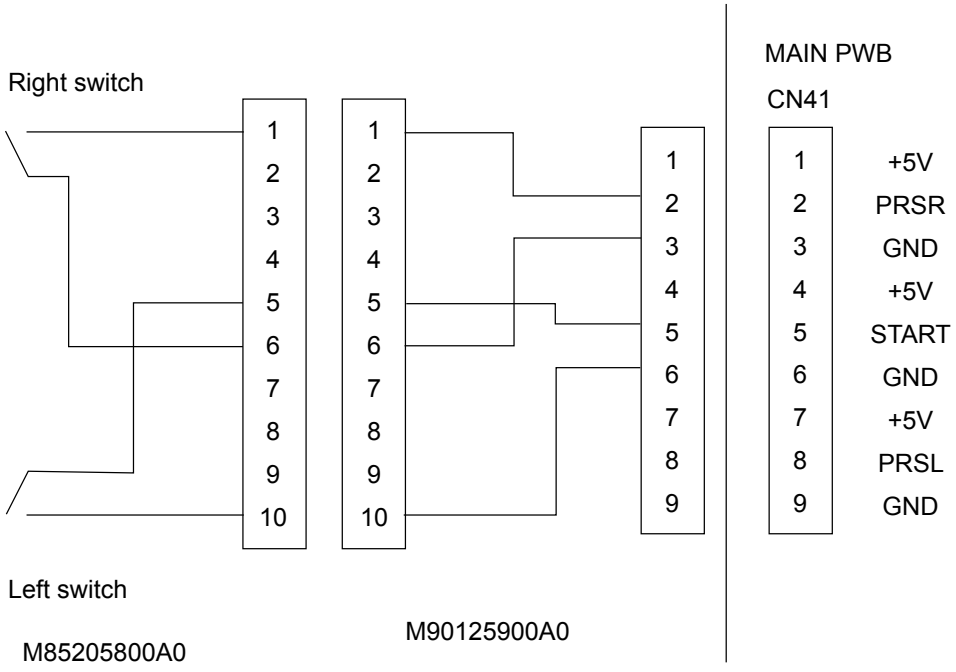
① Set the memory switches as follows.

Select the framed items.

U019	**Selection of pedal** 0 : Standard pedal 1 : Standard pedal (2-step stroke) 2 : Option pedal 3 : Option pedal (2-step stroke)
U020	**Selection of Start pedal** : Standard pedal : Option pedal
U024	**Optional pedal 1 operation** : OFF when depressing pedal again : OFF when detaching pedal

The right-side switch controls the presser foot and the left-side switch controls the start of the sewing machine.

② Wiring diagram



3) 3-Pedal unit

① Set the memory switches as follows.

Select the framed items.

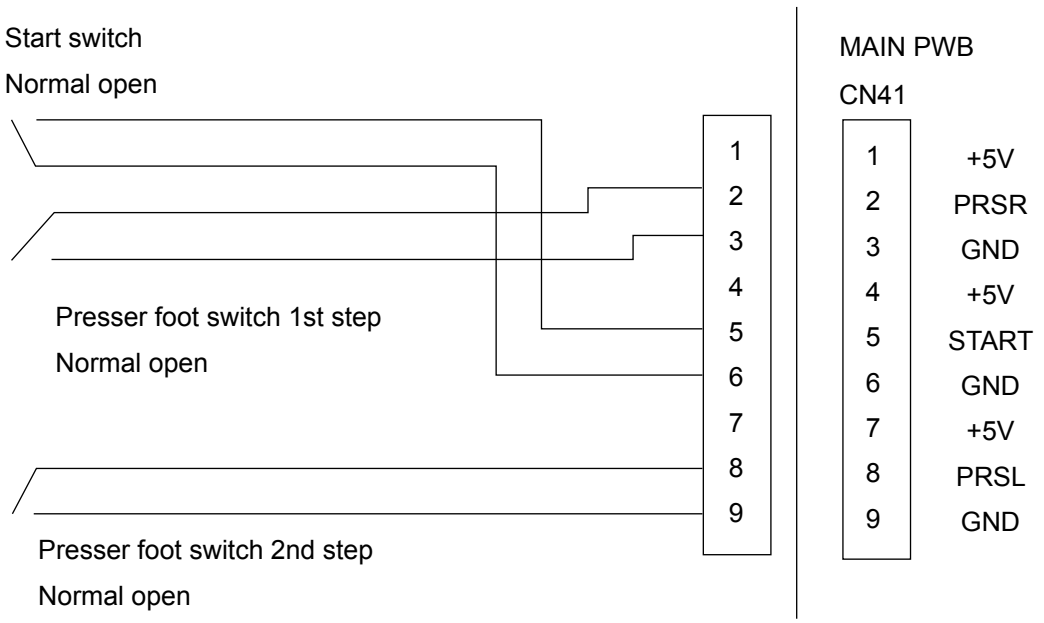
U019	**Selection of pedal** 0 Standard pedal 1 : Standard pedal (2-step stroke) 2 : Optional pedal 3 : Optional pedal (2-step stroke)
U020	**Selection of start pedal** : Standard pedal : Optional pedal
U024	**Ootional pedal 1 operation** : OFF when depressing pedal again : OFF when detaching from pedal
U025	**Ootional pedal 2 operation** : OFF when depressing pedal again : OFF when detaching from pedal

1st step of the pedal: The presser foot comes down to its intermediate position. The presser foot goes up by re-depressing the pedal.

2nd step of the pedal: When the presser foot is depressed when the presser foot is in its intermediate position, the presser foot comes down to its lower end. When the presser foot is depressed again, the presser foot goes up until its intermediate position is reached and stops there.

Start: When the pedal is depressed while the presser foot is in its lower end, the sewing machine starts sewing.

② Wiring diagram



③ Applicable connector

No.	1	2
Part No.	HK016510090	HK016540000
Part name	Housing	Pin contact

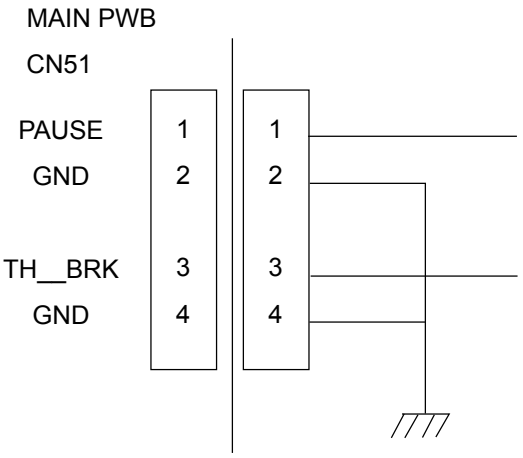
(3) Connection of the pause switch (Cannot be connected with LK-1900S series)

① Set the memory switches as follows.

Select the framed items.

U031	**Sewing machine operation can be stopped with panel key (clear key)** : Inffective : Panel RESET key : External switch

② Wiring diagram



③ Applicable connector

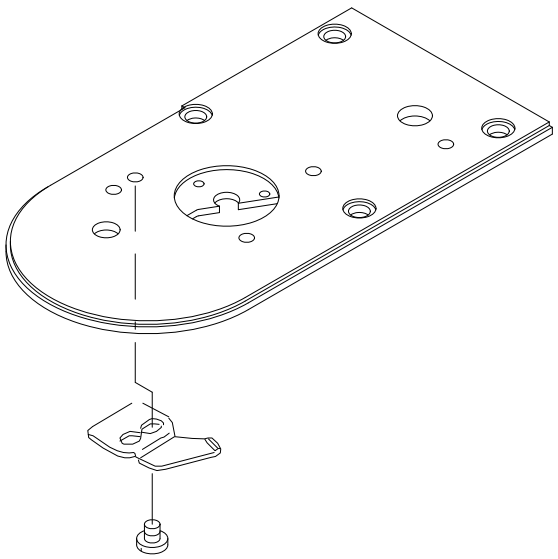
No.	1	2
Part No.	HK01651004C	HK016540000
Part name	Housing	Pin contact

④ Switch

Normally closed (N.C) type

(4) Assembling the bobbin thread clamp plate

1. Fix onto the throat plate by tightening the 2 setscrews.
2. After the assembling, check if the bobbin thread is saved in the direction toward the operator.



(5) Installing the simplified shorter-thread remaining device

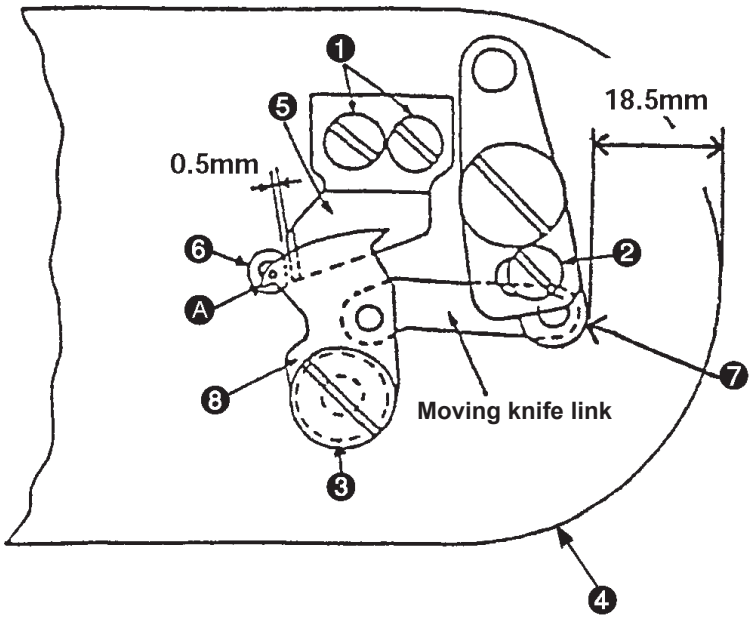
WARNING :
Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.

Standard adjustment

[1] Mounting

Counter knife position : The clearance between the counter knife ❺ and the needle hole guide ❻ is 0.5 mm.

Moving knife position : Before thread trimmer operation (standby state), the distance from the throat plate ❹ to the tip of the thread trimmer lever (small) ❼ is 18.5 mm.



Adjustment procedures	Results of Improper adjustment
[1] Mounting 1. Counter knife position Loosen the counter knife setscrew ❶ to adjust the position. 2. Moving knife position Loosen the screw ❷ to adjust the position.	o If the clearance is less than 0.5 mm, thread may be cut by the counter knife ❺ blade when the thread is pulled with the moving knife ❽ . In this case, upper and lower threads are cut into short pieces. o If the clearance is more than 0.5 mm, the residual thread length after thread trimmer operation becomes longer beneath the work.

[2] Adjustment

To adjust the length of the residual thread on the back side of the material, change the memory switch.

Setting number	Content	Initial setting	Adjustment range	Remarks
K099	Amount of the material to be fed in direction Y just before trimming the thread	0	–3 to +3	
K100	Amount of the material to be fed in direction X just before trimming the thread	0	–3 to +3	

* This is a function that will be displayed when the software is upgraded.

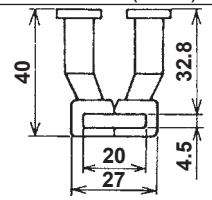
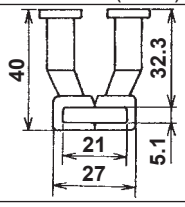
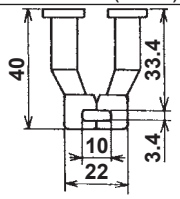
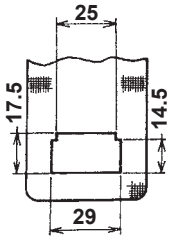
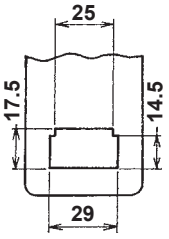
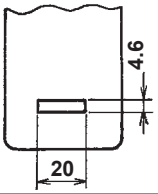
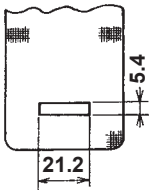
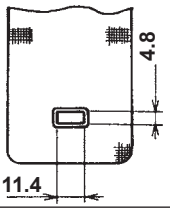
* Be sure to configure the setting in a range where no thread trimming failure occurs.

(Note) The dedicated software is required to use this.

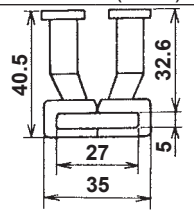
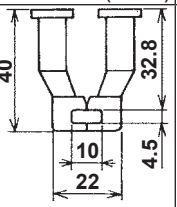
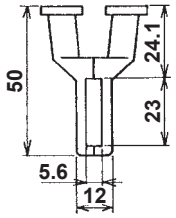
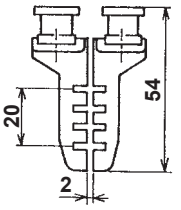
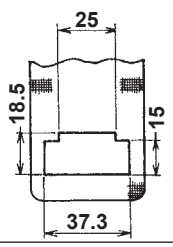
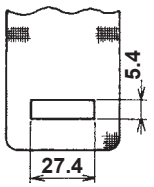
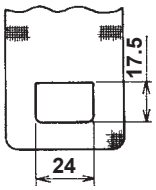
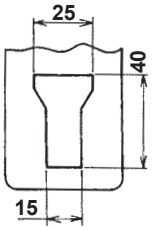
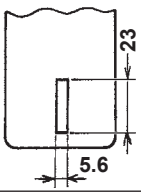
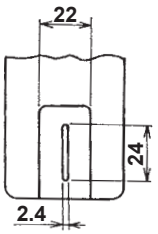
LK-1900B Series	**BP020301-09**	**MA020302-12**
LK-1900BN Series	**BP020403-02**	**MA020404-02**

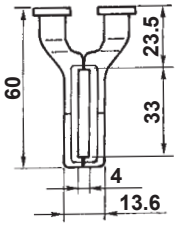
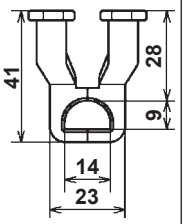
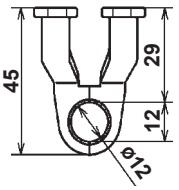
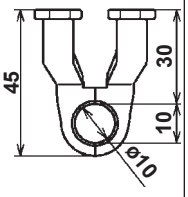
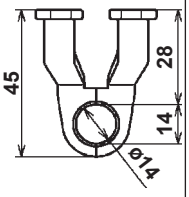
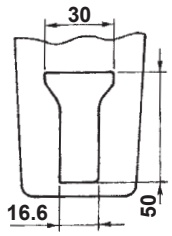
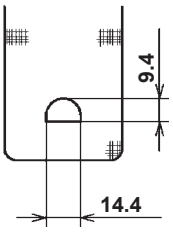
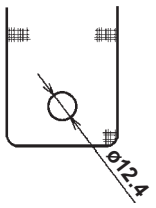
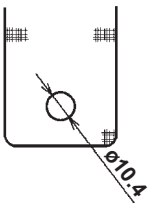
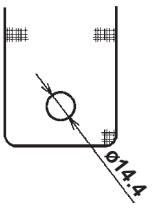
(6) Clamp foot

1) Table of the work clamp foot

No.	1	2	3	4	5
Work clamp foot	13518659 (asm.)			13548557 (asm.)	13542964 (asm.)
					
Feed plate	14116107	14116404	14116800	14116305	14116206
	(With knurl)	(Without knurl)	(Without knurl)	(With knurl)	(With knurl)
					
Sewing specification	S, B	F, B	F	H/W	M
* Finger guard	13533104				
Remarks	Standard accessory for S (standard) type machine head.	Supplied with F (foundation) type machine head. (Depends on the destination) Optional for LK-1900S series		Optional	Standard accessory for M (knit goods) type machine head. Optional for LK-1900S series

* Install a finger guard suitable for each work clamp foot when replacing the work clamp foot.

No.	6	7	8	9	10	11
Work clamp foot	13548151(asm.)		13542451 (asm.)	13571955 (asm.)		13561360 (asm.)
						
Feed plate	13548003	13554803	14116602	14116503	14116909	14116701
	(With knurl)	(With knurl)	(With knurl)	(Without knurl)	(Without knurl)	(Without knurl)
						
Sewing specification	S, B	H / W	S, B	F, B	F	F
* Finger guard	13548300		13533104	13573407		
Remarks	Optional	Standard accessory for H type (Heavy-weight material) and W type(Double-capacity hook) machine head.	Optional	Accessory part for F (foundation) type. (Depends on the destination) Optional for LK-1900S series		Optional

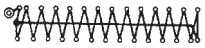
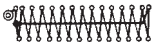
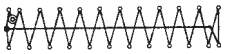
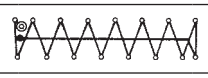
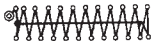
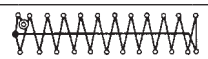
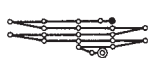
No.	12	13	14	15	16
Work clamp foot	14137509 (right) 14137608 (left)	40021871 (right) 40021872 (left)	40021874 (right) 40021875 (left)	40021877 (right) 40021878 (left)	40021880 (right) 40021881 (left)
					
Feed plate	14137707	40021873	40021876	40021879	40021882
	(Without knurl)	(With knurl)	(With knurl)	(With knurl)	(With knurl)
					
Sewing specification	F, B	S *	S *	S *	S *
* Finger guard	14135305	13533104			
Remarks	Optional	Optional	Optional	Optional	Optional

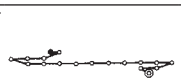
* Install a finger guard suitable for each work clamp foot when replacing the work clamp foot.
* The work clamp foot No. 12 (optional) should be used for the standard patterns Nos. 41 to 46 (lengthwise bar-tacking) of "8.-(6)-2)-[1]- ① Table of standard patterns".
* When using the No.13 to 16 at sewing specification B, use the feed plate described below.
  • No.13 : 40158195
  • No.14 to 16 : 40158196

2) Table of standard patterns

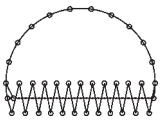
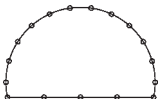
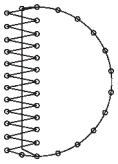
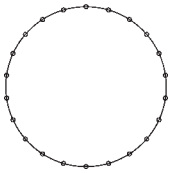
[1] LK-1900B/BN, 1901B/BN, 1902B/BN, 1900BB/BNB, 1900SS

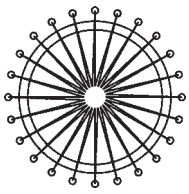
① Table of standard pattern

	No.	Stitch diagram	Number of stitches	Sewing size (mm) Lengthwise	Sewing size (mm) Crosswise	(Note) 2 Work clamp foot No.
Large size bar-tacking	1 (51)		42	2.0	16	1
						2
						3
	2			2.0	10	1
						2
						3
	* 3			2.5	16	1
						4
	* 4			3.0	24	6
						7
	5		28	2.0	10	1
						2
						3
	* 6			2.5	16	1
						4
	7		36	2.0	10	1
						2
						3
	* 8			2.5	16	1
						4
	* 9		56	3.0	24	6
						7
	* 10		64	3.0	24	6
						7
Small size bar-tacking	11		21	2.5	6	8
	12		28	2.5	6	
	13		36	2.5	6	
Knit goods bar-tacking	14		14	2.0	8	5
	15		21	2.0	8	
	16		28	2.0	8	
	17		21	0	10	1
						2
						3
	18		28	0	10	1
						2
						3
	19			0	25	6
						7

	No.	Stitch diagram	Number of stitches	Sewing size (mm) Lengthwise	Sewing size (mm) Crosswise	(Note) 2 Work clamp foot No.
Knit goods bar-tacking	20		36	0	25	6
						7
	21		41	0	25	6
						7
	22		44	0	35	(Note) 3
Lengthwise bar-tacking	23	(Other side)  (This side)	28	20	4.0	9
						10
	24	(Other side)  (This side)	36	20	4.0	9
						10
	25	(Other side)  (This side)	42	20	4.0	9
						10
	26	(Other side)  (This side)	56	20	4.0	9
						10
Lengthwise linear bar-tacking	27	(Other side)  (This side)	18	20	0	11
	28	(Other side)  (This side)	21	10	0	
	29	(Other side) (This side)		20	0	
	30	(Other side)  (This side)	28	20	0	

(Note) 1. Sewing size shows the dimensions when the scale rate is 100%.
2. For work clamp foot No., refer to "8.-(6)-1) Table of the work clamp foot" in the separate sheet hereto.
3. For No. 22, process the work clamp foot blank for use.
4. Use the patterns with *marks for sewing denim.
5. No. 51 is for the machine used without needle thread clamp.
6. The origin is different by 5 mm from that of the lengthwise bar-tacking patterns Nos. 23 to 26.
7. LK-1900BB, 1900BNB does not have No. 51. Moreover, LK-1900B-S, 1900BN-S has some patterns which differ in the needle entry points.

	No.	Stitch diagram	Number of stitches	Sewing size (mm)		(Note) 2 Work clamp foot No.
				Lengthwise	Crosswise	
Semilunar bar-tacking	31		52	7	10	13
	32		63	7	12	13
	33		24	6	10	13
	34		31	6	12	13
	35		48	10	7	14
	36		48	10	7	14
Large size bar-tacking	37		90	3	24	6
						7
Knit goods bar-tacking	38		28	2	8	5
Round bar-tacking	39		28	ø12		16
	40		48			

	No.	Stitch diagram	Number of stitches	Sewing size (mm)		(Note) 2 Work clamp foot No.
				Lengthwise	Crosswise	
Lengthwise bar-tacking	41		29	20	2.5	12
	42		39	25	2.5	12
	43		45	25	2.5	12
	44		58	30	2.5	12
	45		75	30	2.5	12
	46		42	30	2.5	12
Radial bar-tacking	47		91	ø8		15
	48		99			
	49		148			
	50		164			

(Note) 1. Sewing size shows the dimensions when the scale rate is 100%.

2. For work clamp foot No., refer to "8.-(6)-1) Table of the work clamp foot" in the separate sheet hereto.

3. Patterns No. 41 to 46 are arranged for the optional work clamp foot (No. 12).

② Table of bar-tacking standard pattern specifications

	No.	Length-wise	Cross-wise	Number of stitches	Pattern	1900SS	1900B/BN/BB/BNB		1901B/BN	1902B/BN
						S, H	S, F, H, W, B	M	S	S, H
*	1(51)	2.0	16	42	Large size bar-tacking	*	*			
	2	2.0	10	42	Large size bar-tacking	*	*			
	3	2.5	16	42	Large size bar-tacking	*	*			
	4	3.0	24	42	Large size bar-tacking					
	5	2.0	10	28	Large size bar-tacking	*	*			
	6	2.5	16	28	Large size bar-tacking	*	*			
	7	2.0	10	36	Large size bar-tacking	*	*			
	8	2.5	16	36	Large size bar-tacking	*	*			
	9	3.0	24	56	Large size bar-tacking					
	10	3.0	24	64	Large size bar-tacking					
	11	2.5	6	21	Small size bar-tacking (eyelet)	*	*		*	
	12	2.5	6	28	Small size bar-tacking (eyelet)	*	*		*	
	13	2.5	6	36	Small size bar-tacking (eyelet)	*	*		*	
	14	2.0	8	14	Knit goods bar-tacking	*	*	*		
	15	2.0	8	21	Knit goods bar-tacking	*	*	*		
	16	2.0	8	28	Knit goods bar-tacking	*	*	*		
	17	0	10	21	Straight line bar-tacking	*	*			*
	18	0	10	28	Straight line bar-tacking	*	*			*
	19	0	25	28	Straight line bar-tacking					
	20	0	25	36	Straight line bar-tacking					
	21	0	25	41	Straight line bar-tacking					
	22	0	35	44	Straight line bar-tacking					
	23	20	4.0	28	Lengthwise bar-tacking					
	24	20	4.0	36	Lengthwise bar-tacking					
	25	20	4.0	42	Lengthwise bar-tacking					
	26	20	4.0	56	Lengthwise bar-tacking					
	27	20	0	18	Lengthwise straight line bar-tacking					
	28	10	0	21	Lengthwise straight line bar-tacking					
	29	20	0	21	Lengthwise straight line bar-tacking					
	30	20	0	28	Lengthwise straight line bar-tacking					
	31	2	16	52	Semilunar bar-tacking					
	32	2	10	63	Semilunar bar-tacking					
	33	6	10	24	Semilunar bar-tacking					
	34	6	12	31	Semilunar bar-tacking					
	35	10	7	48	Semilunar bar-tacking					
	36	10	7	48	Semilunar bar-tacking					
	37	3	24	90	Large size bar-tacking					
	38	2.0	8	28	Knit goods bar-tacking	*	*	*		
	39	28	ø12		Round bar-tacking					
	40	48	ø12		Round bar-tacking					
	41	29	20	2.5	Lengthwise bar-tacking					
	42	39	25	2.5	Lengthwise bar-tacking					
	43	45	25	2.5	Lengthwise bar-tacking					
	44	58	30	2.5	Lengthwise bar-tacking					
	45	75	30	2.5	Lengthwise bar-tacking					
	46	42	30	2.5	Lengthwise bar-tacking					
	47	91	ø8		Radial bar-tacking					
	48	99	ø8		Radial bar-tacking					
	49	148	ø8		Radial bar-tacking					
	50	164	ø8		Radial bar-tacking					

In the condition of delivery from the factory, the pattern sewing with * marks can be made.
When using other standard patterns, refer to "I-6.-9. Setting whether the calling of the pattern data is operative or not" described in the manual of LK-1900B/1900BN.
* LK-1900BB, 1900BNB does not have No. 51.

[2] LK-1903B/BN, 1903BB/BNB, 1903SS

① Table of Standard Patterns

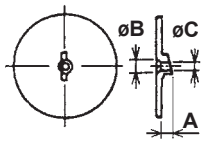
The number of stitches and the standard sewing lengths X and Y are as specified in the table below.

Pattern No.	Stitch shape	Sewing thread (pcs.)	Standard length X (mm)	Standard length Y (mm)	Pattern No.	Stitch shape	Sewing thread (pcs.)	Standard length X (mm)	Standard length Y (mm)
1 · 34		6-6	3.4	3.4	18 · 44		6	3.4	0
2 · 35		8-8			19 · 45		8		
3		10-10			20		10		
4		12-12			21		12		
5 · 36		6-6			22		16		
6 · 37		8-8			23 · 46		6	0	3.4
7		10-10			24		10		
8		12-12			25		12		
9 · 38		6-6			26 · 47		6-6	3.4	3.4
10 · 39		8-8			27		10-10		
11		10-10			28 · 48		6-6		
12 · 40		6-6			29		10-10		
13 · 41		8-8			30 · 49		5-5-5	3.0	2.5
14		10-10			31		8-8-8		
15 · 42		6-6			32 · 50		5-5-5		
16 · 43		8-8			33		8-8-8		
17		10-10							

* Standard sewing lengths X and Y given above are given assuming that the scale is 100%.
Use the patterns No. 34 to 50 with hole diameter ø1.5 mm or less.

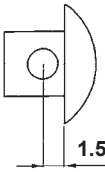
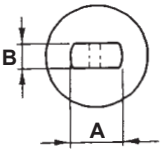
* In case of LK-1903BB, 1903BNB pattern No.46 to 50 and No.23 to 33 does not display in the condition of delivery from the factory
If you change the setting of memory switch level K102, it will be possible to display above patterns.

② Models classified by button sizes

Model name			LK-1903B/BN-301						LK-1903B/BN-302		Optional	
Button size classification			For Extra-small buttons			For small buttons (accessories)			For medium-sized buttons		For large buttons	
Outside diameter that can be adjusted (mm)			ø8 to ø9	ø9 to ø10	ø10 to ø15	ø10 to ø20			ø10 to ø20		ø15 to ø32	
Sewing size (mm)	Lengthwise (Y)		0 to 2.5	0 to 3.0	0 to 3.5	0 to 3.5			0 to 4.5		0 to 6.5	
	Crosswise (X)		0 to 2.5	0 to 3.0	0 to 3.5	0 to 3.5			0 to 4.5		0 to 6.5	
Button clamp jaw lever (combination)	Thickness (mm)		1.7 (2.2)			1.7 (2.2) (2.7) *(0.9)			2.0 (2.2) (2.7)		2.7 (3.2)	
					Engraving			Engraving		Engraving		Engraving
	Part No.	Right	MAZ158070BB		G	14148852		K	14149058	L	MAZ157070BB	D
			(MAZ158070BA)		F	(MAZ155070B0)		B	(MAZ155070B0)	B	(MAZ157070BA)	E
			-		-	(MAZ156070B0)		C	(MAZ156070B0)	C	-	-
			-		-	*(B25553720A0)		-	-	-	-	-
		Left	MAZ158080BB		G	14148951		K	14149157	L	MAZ157080BB	D
			(MAZ158080BA)		F	(MAZ155080B0)		B	(MAZ155080B0)	B	(MAZ157080BA)	E
			-		-	(MAZ156080B0)		C	(MAZ156080B0)	C	-	-
			-		-	*(B25573720A0)		-	-	-	-	-
Needle hole guide (mm) 	Height of boss A		1.6 (1.8)			(1.6) (1.8) *(1.1)			1.6		1.4	
	Outside diameter of boss B		ø2.8			(ø3.5)			ø3.5		ø3.5	
	Diameter of hole C		ø1.6			(ø1.6)			ø2.0		ø2.0	
	Part No.		MAZ15801000			(MAZ15501000) (14149603)			MAZ15601000		MAZ15701000	
			(14149900)									
			-			*(D2426284Y00)						
Feed plate			MAZ15502000(□ 8.5)			←			MAZ15602000(□ 10)		MAZ15702000(□ 12.5)	

● Items in ( ) are optional.

● * For common use

Model name	Option (LK-1903B/BN-305)	
Button type	For shank buttons	
Max. Sewing speed	1,500 sti/min	
Button configuration	Outside diameter	ø8 to ø20
	Diameter of hole in button	ø1.5 or more
	Position of hole in button	
Configuration of shank		B (mm) / A (mm) Min. / A (mm) Max.: 1 / 4 / 9; 2 / 3 / 8; 3 / - / 7
Sewing pattern No.	18, 19, 20, 21, 22	

Optional parts for shank button	
Part No.	Names of part
14146054	Button clamp unit (compl.) for shank button
D1401M1YC0A	Needle bar (for TQ-1)
MAZ160170A0	Wiper (asm.)
40015434	Moving plate link A
14148209	Bushing
SL6030892TN (2 pcs.)	Screw
MAZ16015000	Button support link
SD0640321TP	Hinge screw
40010103	Connecting link
SL6040892TN (2 pcs.)	Screw
MAZ16021000	Needle hole guide
MTQ300B1400	Needle TQ × 3 # 14

9. Miscellaneous

(1) Connection of the magnet wiper (cannot be connected with LK-1901B, LK-1900S Series)

Connect the magnet wiper connector to the MAIN board CN47 (2P).

① Set the memory switches as follows.

Select the framed items.

U051	**Wiper operation method can be selected**  : Without wiper at the time of thread trimming on the way  : With wiper at the time of thread trimming on the way ①  : With wiper at the time of thread trimming on the way ②  : Magnet wiper

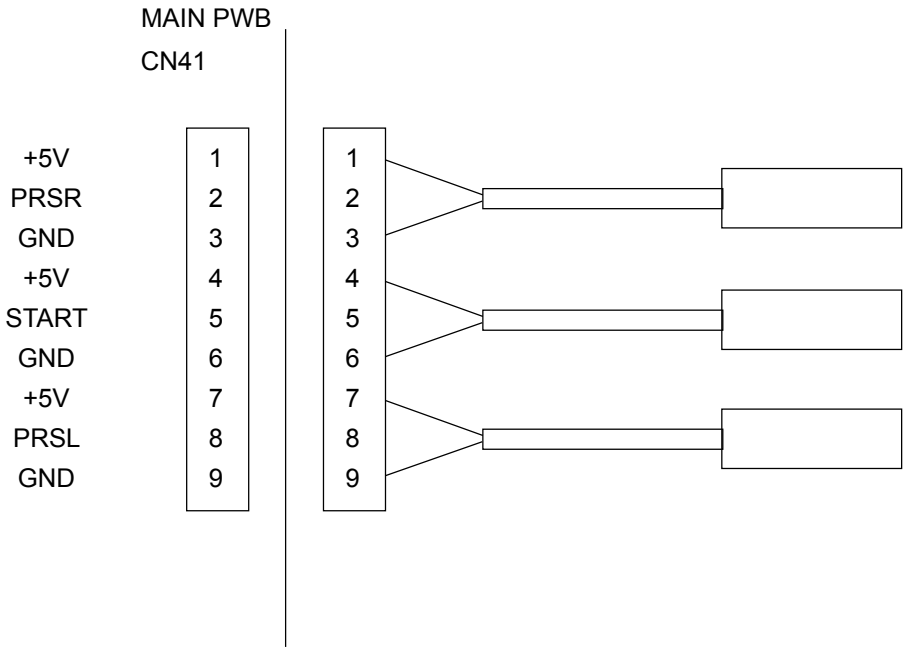
The operation can be set with the following items.

K052	**Magnet wiper-out time** (Setting possible in the unit of 10 ms)	
K053	**Magnet wiper-in time** (Setting possible in the unit of 10 ms)	

(2) Connection of the marking light (cannot be connected with LK-1901B)

The sewing machine has 3 output ports to which three 5-v marking lights can be connected.
0.5A at maximum is applicable per marking light, and 2.5 AV at maximum is applicable with 3 marking lights in total. Connect to CN41. It is a connector for the foot switch (presser, start switch), and therefore, it cannot be used simultaneously with the optional pedal marking light.

1) Wiring diagram



2) Applicable connector

No.	1	2
Part No.	HK016510090	HK016540000
Part name	Housing	Pin contact

3) Marking light

Recommended/Neoark Corporation: LEM-1GP (green crisscross), LEM-1RP (orange crisscross)

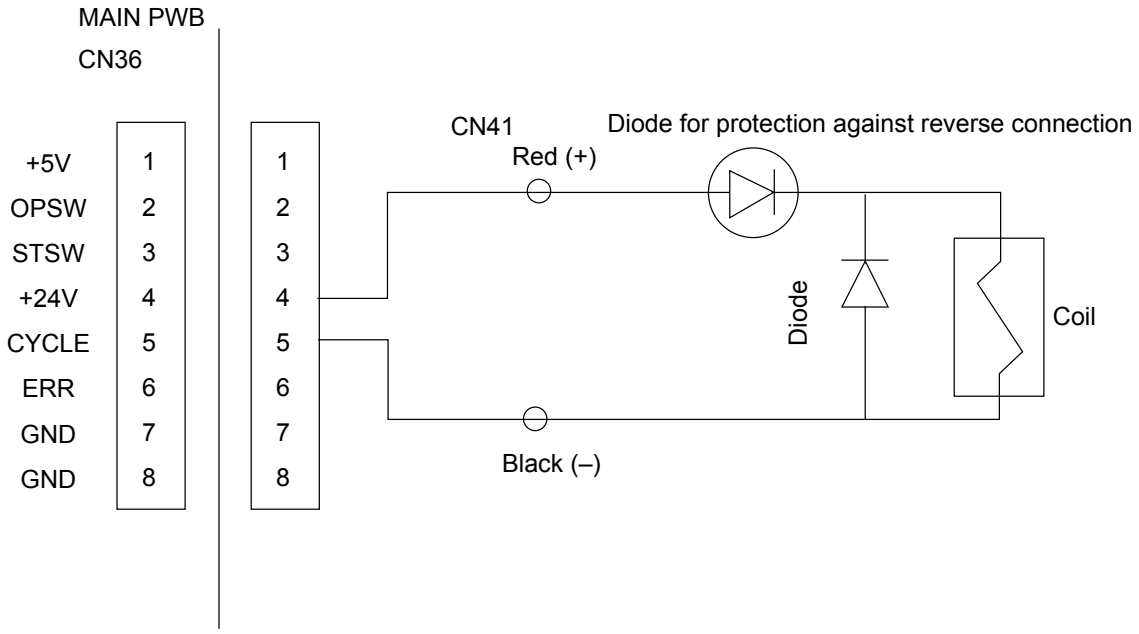
(Note) Specialized "mounting base" is not supplied with the sewing machine.

(3) Connection of the needle cooler (turns ON while machine is running) (cannot be connected with LK-1901B)

Connect the needle cooler solenoid valve to the MAIN board CN36 (8P).

It is originally for BR35 connector. The needle cooler cannot be used with BR35.

1) Wiring diagram



2) Applicable connector

No.	1	2
Part No.	HK01651008B	HK016540000
Part name	Housing	Pin contact

3) Solenoid valve (for cooler)

24 V DC, 1.8 W Surge voltage protection circuit with polarity is equipped as shown in the diagram below.

Ex.) SMC Corporation's SY series, VZ series, etc.

10. Troubles and corrective measures

(1) Mechanical parts

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

Trouble	Cause (1)	Cause (2)	Check and corrective measures
1. Wiper cannot spread a thread.	1-1) Interference between wiper and needle	1-A) Wiper mounting position is inadequate.	Adjust the wiper position.
	1-2) Displacement of front-rear wiper position	2-A) Wiper mounting position is inadequate.	Adjust the wiper position.
	1-3) Thread holding before wiper action	3-A) The right left wiper mounting position is inadequate (insufficient distance to the needle).	Adjust the wiper position.
2. Abnormal noise	2-1) Backlash between the oscillator and the shuttle driver shaft is large.		Check oscillator gear positioning and adjust the lower shaft gear backlash.
	2-2) Too much clearance between inner hook and shuttle driver		Adjust the clearance between inner hook and shuttle driver
3. Deformation in sewn patterns	3-1) Too much backlash in the Y-feed gear	1-A) Backlash is too much in the Y-feed arm and the motor base.	Adjust backlash of motor base.
		1-B) Backlash is too much in the Y-feed pulse motor and the motor base.	Adjust backlash of Y-feed pulse motor.
	3-2) Too much backlash in the X-feed gear		Adjust backlash of the X-feed gear.
	3-3) Travelling torque in X-direction is excessive.	3-A) The motor is pressed against the X-feed arm too strongly.	Adjust backlash of the motor.
		3-B) The feed plate or the work clamp foot is caught by the needle hole guide.	Tighten the setscrew further for the needle hole guide.

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WARNING :
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Trouble	Cause (1)	Cause (2)	Check and corrective measures
From the previous page			
	3-4) Travelling torque in Y-direction is excessive.	4-A) The pulse motor is pressed against the Y-feed shaft too strongly.	Adjust backlash of the feed motor gear.
		4-B) Friction is excessive between the Y-feed arm and the cloth feed support plate.	Install the cloth feed support plate.
		4-C) The feed plate or the work clamp foot is caught by the needle hole guide.	Tighten the setscrew further for the needle hole guide.
	3-5) Inadequate adjustment of the X-sensor position		Adjust the X-sensor position correctly.
	3-6) Inadequate adjustment of the Y-slit plate		Adjust position of the Y-slit plate correctly.
4. Sewing machine locked	4-1) Large needle compared with the hole diameter of the needle hole guide		Replace the needle hole guide.
5. Severe vibration	5-1) Inadequate crank balancer positioning		Define the correct crank balancer position.
6. Malfunction of vertical movement of work clamp foot	6-1) Looseness of work clamp foot/thread trimmer cam screw		Define the work clamp foot/thread trimmer cam position and fix the cam.
	6-2) Work clamp foot stepping motor malfunction	2-A) Defective the work clamp foot stepping motor.	Replace the work clamp foot stepping motor.
		2-B) The work clamp foot stepping motor is wrongly connected.	Check the connector connections.
	6-3) Defective circuit board	3-A) Circuit board programming flaw.	Replace the circuit board.
		3-B) Connector connections are wrongly made.	Check the connector connections.

(2) Sewing conditions

WARNING :
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Trouble	Cause (1)	Cause (2)	Check and corrective measures
1. Thread comes off at the start of sewing.	1-1) Stitch skipping at the 1st stitch		Decrease the sewing speed at the start of sewing.
		1-A) Penetration resistance of the thread against the cloth is small.	Use a thinner needle. (Lower the needle count to be used.)
	1-2) Length of thread remaining at the needle is not sufficient.	2-A) Tension controller No. 1 provides an excessive tension.	Properly adjust the tension controller No. 1.
		2-B) Floating of the AT thread tension disc is insufficient.	Adjust the amount of AT thread tension floating. (LK-1900B Series, LK-1900BN Series) Thread tension disk floating amount adjustment (LK-1900S series, LK-1900BN series)
		2-C) Stroke of the thread take-up spring is excessive.	Adjust the stroke of the thread take-up spring.
		2-D) The thread take-up spring tension is insufficient.	Adjust the thread take-up spring tension.
		2-E) Level difference between the needle hole guide and the counter knife is excessively high.	Adjust the height of the counter knife.
		2-F) Needle thread tension is high and the thread is excessively stretched.	Adjust the needle thread tension.
		2-G) Thread spreading section of the moving knife has scratches.	Polish the thread spreading section of the moving knife with buff or replace the knife.
	1-3) Length of bobbin thread remaining is not sufficient.	3-A) Level difference between the needle hole guide and the counter knife is excessively high.	Adjust the height of the counter knife. (Otherwise, widen the gap.)
		3-B) Lower face of the needle hole guide has scratches.	Polish the needle hole guide with a buff or replace it.
		3-C) Thread spreading section of the moving knife has scratches.	Polish the thread spreading section of the moving knife with buff or replace the knife.
		3-D) Shuttle upper spring has scratches.	Polish the shuttle upper race with a buff or replace it.
		3-E) The bobbin thread tension is excessive.	Adjust the bobbin thread tension.
		3-F) The bobbin or bobbin case has scratches.	Polish it with a buff or replace it.

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WARNING :
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Trouble	Cause (1)	Cause (2)	Check and corrective measures
From the previous page			
	1-4) Material to be sewn is not properly stretched.		Remove the slack of the material to be sewn.
	1-5) Unstable needle thread clamp (LK-1900B Series, LK-1900BN Series)	5-A) Thread tends to be extended or sliding efficiency is worse.	Increase the number of stitches of needle thread clamp to 3 to 4 stitches.
			Lower the speed of the 1st stitch. (600 to 1,000 sti/min)
		5-B) Pitch of 1st stitch is too small.	Lower the needle thread tension of 1st stitch.
			Increase the pitch of 1st stitch.
		5-C) Needle thread that is cut with the bird's nest knife has not been sucked. (LK-1900BB/BNB, 1903BB/BNB)	Clean up the needle thread clamp section.
	1-6) Threading the needle bar thread guide is wrong.		Refer to the item “Threading the needle bar thread Guide”.
	1-7) Bobbin runs idle and the bobbin thread is drawn out.		Use a stronger idling prevention spring.
		7-A) Initial positioning of the moving knife is inadequate.	Adjust the initial position of the moving knife.
2. Needle breakage	2-1) Inadequate clearance between the shuttle driver and the needle		Adjust the clearance between needle and shuttle driver.
	2-2) Inadequate clearance between the needle and the inner hook		Adjust the clearance between the needle and the inner hook.
	2-3) Feed timing is defective.	3-A) Feed timing is slow in regard to the work pressure.	Change the feed timing by the use of the memory switch.
	2-4) Needle comes in contact with the moving knife.		Adjust the moving knife position.
			Adjust the work clamp foot (feed bracket) position.
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WARNING :
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Trouble	Cause (1)	Cause (2)	Check and corrective measures
From the previous page			
	2-5) Needle comes in contact with the wiper.		Adjust the wiper position.
	2-6) Needle is bent.	6-A) The needle thread tension is too high.	Adjust the tension to a proper level.
		6-B) The work clamp foot treads on the needle thread at the beginning of sewing and the wiper is caught.	Increase the crosswise clearance between the wiper and the needle. (23 to 25 mm)
	2-7) Needle is too thin.		Change the needle No. to the suitable one to the material.
	2-8) Needle comes in contact with the moving knife for shorter thread remaining thread trimmer. (LK-1900BB/BNB, 1903BB/BNB)	8-A) Sensor position is inappropriate.	Check the initial position of moving knife, and adjust the initial position of sensor.
	2-9) Needle comes in contact with the suction nozzle. (LK-1900BB/BNB, 1903BB/BNB)	9-A) Sensor position is inappropriate.	Check the initial position of suction nozzle, and adjust the initial position of sensor.
3. Stitch Skipping	3-1) Too much clearance between the needle and the inner hook		Adjust the clearance between needle and inner hook.
	3-2) Inadequate timing adjustment for the needle and the inner hook		Adjust timing for the needle and the inner hook.
	3-3) Inadequate clearance between the shuttle driver and the needle		Adjust the clearance between needle and shuttle driver.
	3-4) Material to be sewn is not properly stretched.	4-A) Too much clearance between the work clamp foot and sewing object	Adjust the work clamp foot height. (LK-1900B Series, LK-1900BN Series)
			Remove the slackness of the sewing object.
	3-5) Needle is bent or blunt.		Replace the needle.
	3-6) Loop of the needle thread falls down.		Attach the needle with the long groove orienting slightly to the right. (Approximately 20°)
		6-A) Feed timing is too fast.	Change the feed timing by the use of the memory switch.

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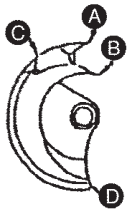
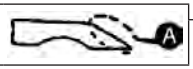
Trouble	Cause (1)	Cause (2)	Check and corrective measures
4. Thread breakage	4-1) Scratches on the inner hook	1-A) Scratches on section Ⓐ (Contact of the inner hook with the needle)	After polishing the blade point of the inner hook with oil stone, polish it with polishing powder. Properly adjust the clearance between the needle and the inner hook.
		1-B) Scratches on section Ⓑ (Scratches occur when the needle is bent or broken.)	After polishing the blade point of the inner hook, polish it with polishing powder.
		1-C) Scratches on section Ⓒ (Needle scratches the inner hook when removing the inner hook.)	After polishing the blade point of the inner hook, polish it with polishing powder.
		1-D) Scratches on section Ⓓ	After polishing the blade point of the inner hook, polish it with polishing powder.
	4-2) Thread enters into the shuttle.	2-A) Position of the shuttle upper spring is wrong.	Properly adjust the position of the shuttle upper spring.
		2-B) Blade point section Ⓐ of the shuttle is round. 	Replace the inner hook.
		2-C) Position of the shuttle is wrong.	Properly adjust the position of the shuttle.
		2-D) Needle thread tension is too low.	Properly adjust the needle thread tension.
		2-E) Thread take-up spring tension is too low.	Adjust the thread take-up spring.
		2-F) Length of the remaining needle thread is too long.	Properly adjust the thread tension No. 1 (asm.).
		2-G) The specified inner hook and shuttle driver are not used.	Use the specified parts.
	4-3) Scratches on the shuttle driver.		Remove the scratches and polish with buff, or replace the shuttle driver.
	4-4) Clearance between the shuttle driver and the inner hook is too small.		Properly adjust the clearance between the shuttle driver and the inner hook.
	4-5) Scratches on the needle hole guide.		Remove the scratches and polish with buff, or replace the needle hole guide.

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WARNING :
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Trouble	Cause (1)	Cause (2)	Check and corrective measures
From the previous page			
	4-6) Finish of the needle hole is rough.		Replace the needle.
	4-7) Thread take-up spring is maladjusted.	7-A) Stroke of the thread take-up spring is too large.	Properly adjust the thread take-up spring.
		7-B) Thread take-up spring tension is too high.	Properly adjust the thread take-up spring.
	4-8) Rotation of the inner hook is defective.	8-A) Race face of the shuttle is clogged with thread waste.	Remove the inner hook and remove the thread waste.
		8-B) Oil amount is insufficient.	Supply oil to the shuttle components.
	4-9) Needle thread clamp OFF (LK-1900B Series, LK-1900BN Series)	9-A) Needle thread length is inadequate.	Adjust the needle thread length and turn the needle thread clamp ON.
5. Thread breakage at the time of thread trimming	5-1) Thread release timing is defective.	1-A) Floating amount of the thread tension disk No. 2 is small.	Adjust the amount of thread tension No. 2 floating.
	5-2) Thread spreading section of the moving knife has scratches.		Paying attention to the blade section, polish with polishing powder.
	5-3) Shuttle upper spring has scratches.		Remove the scratches.
	5-4) Level difference between the needle hole guide and the counter knife is too high.	4-A) Thread is cut before trimming with the blade section of the moving knife.	Properly adjust the position of counter knife.
	5-5) Clearance between the needle hole guide and the counter knife is too small.	5-A) Thread is cut before trimming with the blade section of the moving knife.	Properly adjust the position of counter knife.
	5-6) Lower face of the needle hole guide has scratches.	6-A) Thread is cut with the needle hole guide.	Remove the scratches and polish with buff, or replace the needle hole guide.
	5-7) Thread spreading timing of the moving knife is defective.		Adjust initial positions of the thread trimmer/ work clamp foot origin sensor and the moving knife.
	5-8) Thread take-up spring tension is too low.		Adjust the thread take-up spring.

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Trouble	Cause (1)	Cause (2)	Check and corrective measures
6. Defective thread trimming	6-1) Sharpness of the knife is defective.	1-A) Worn-out of the moving and counter knives.	Replace the moving and counter knives.
		1-B) Engagement of the moving and counter knives is defective.	Properly adjust the height and position of the moving and counter knives.
		1-C) Parallel of the blade section of counter knife is defective.	Properly adjust the parallel of the blade section of counter knife.
		1-D) Attaching position of the counter knife is defective.	Properly adjust the attaching position of counter knife.
	6-2) Double cutting for the needle thread. (Thread waste remains inside the cylinder arm cap.)	2-A) There is a burr on thread spreading section Ⓐ of the moving knife. The shape of the thread trimmed becomes ⟆ and thread waste remains. 	Paying attention to the blade section, polish with polishing power, or replace the moving knife.
		2-B) The shuttle upper spring has scratches. (The shape of the thread trimmed becomes pict and thread waste remains.)	Remove the scratches.
	6-3) Moving knife does not spread threads.	3-A) Initial position of the moving knife is maladjusted.	Adjust the initial position of the moving knife.
		3-B) Thread trimmer cam position is inadequate.	Adjust the thread trimmer cam position.
		3-C) Position of the shuttle upper spring is defective.	Adjust the position of shuttle upper spring.
	6-4) Stitch skipping at the final stitch	4-A) Timing of the needle to the inner hook and the clearance between them are defective.	Adjust the timing and the clearance.
		4-B) Work clamp foot is large.	Let the beginning of stitch come closer to the work clamp foot by moving the pattern.
		4-C) Loop of the needle thread falls down.	Attach the needle with the long groove orienting slightly to the right (approximately 20°)
	6-5) Bobbin thread cannot be cut.	5-A) Bobbin thread tension is low.	Strong then the bobbin thread tension.
		5-B) Needle hole size of the needle hole guide is large.	Replace the needle hole guide with a new one having a smaller hole diameter.

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Trouble	Cause (1)	Cause (2)	Check and corrective measures
7. Poorly tense stitches	7-1) Tension controller No. 2 is maladjusted.	1-A) Tension of the tension controller No. 2 is low.	Properly adjust the tension of tension controller No. 2.
	7-2) Tension controller No. 2 is floating.		Adjust the thread tension releasing mechanism.
	7-3) Thread take-up spring is maladjusted.		Adjust thread take-up spring tension and stroke.
	7-4) Clearance between the inner hook and the shuttle driver is defective.	4-A) The clearance between the inner hook and the shuttle driver is too small.	Properly adjust the clearance of inner hook and shuttle driver.
	7-5) Selection of the needle to be used is improper.	5-A) Needle to be used is thin.	Replace the needle with a thicker one.
	7-6) Selection of the needle hole guide is improper.	6-A) Hole diameter of the needle hole guide to the needle to be used and thread is small.	Replace the needle hole guide with a new one having a larger needle hole.
	7-7) Shape of the feed plate is defective.	7-A) Material to be sewn is stiff and closely contacted with the throat plate, and there is no clearance between them to pass the thread.	Raise the material to be sewn by means of the feed plate.
		7-B) Material to be sewn is highly elastic and closely contacted with the throat plate, and there is no clearance between them to pass the thread.	Raise the material to be sewn by means of the feed plate.
	7-8) Feed timing is defective.	8-A) Feed timing is too fast.	Use the memory switch to change the feed timing.
8. Defective stitches with the synthetic thread	8-1) Thread breakage due to heat	1-A) The sewing speed is too fast.	Slow down the maximum speed.
		1-B) The needle used is too thick.	Use a thin needle or a super needle for the synthetic thread.
			Use silicon.
			Use a needle cooler.
	8-2) Hangnail of thread	2-A) Thread path is defective.	Polish the thread path of each component with polishing powder.
		2-B) Finish of the needle hole is defective.	Replace the needle.

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

Trouble	Cause (1)	Cause (2)	Check and corrective measures
From the previous page	From the previous page	2-C) Loop of the needle thread falls down.	Move the thread guide A to the left.
	8-3) Thread floating occurs at the sewing start.	3-A) Penetration resistance of the thread against the cloth is too small.	Use a thinner needle. (Lower the number of needle to be used.)
			Needle thread clamp ON.
	8-4) Stitch skipping due to the heat	4-A) Sewing speed is too fast.	Change the maximum speed (electrical components.)
		4-B) Needle is too thin.	Use a thicker needle. (Raise the number of needle to be used.)
		4-C) Loop of the needle thread falls down.	Attach the needle with the long groove orienting slightly to the right (approximately 20°).
			Use a needle cooler.
	8-5) Uneven stitch tightness due to the stretch of thread	5-A) Sewing speed is too fast.	Reduce the speed by means of the speed variable resistor.
		5-B) Tension of the thread tension No. 2 (asm.) is excessive.	Decrease the tension of tension controller No. 2.
9. Thread chips generated in the shuttle	9-1) Long needle thread at the beginning of stitches	1-A) The thread trimmer is used for cutting.	Needle thread clamp OFF (LK-1900B Series, LK-1900BNB Series)
			Adjust the needle thread length to 32 to 36 mm.
			Increase the sewing length to more than 10 mm.
10. Roll-in malfunction of remaining thread at underside material.	10-1) Protrusion of needle thread	1-A) Material does not keep close contact with the throat plate.	Change the feed plate.
		1-B) Stitch size is short.	Increase the sewing size to more than 10 mm.
		1-C) The needle thread is long.	Adjust the needle thread length to 32 to 36 mm.

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

Trouble	Cause (1)	Cause (2)	Check and corrective measures
11. Long needle thread at the start of sewing remains on the wrong side of material. (LK-1900BB/BNB)	11-1) Sharpness of the knife is defective.	1-A) Worn-out of the counter knife.	Replace the counter knife.
	11-2) Stitch length of sewing start is long.		Make stitch length of sewing start (up to three stitches) shorter. (Refer to handling of a needle of bird's nest and shorter thread remaining.)
12. Long needle thread at the end of sewing remains. (LK-1900BB/BNB, 1903BB/BNB)	12-1) Sharpness of the knife is defective.	1-A) Worn-out of the moving and counter knives.	Replace the moving and counter knives.
		1-B) Engagement of the moving and counter knives is defective.	Properly adjust the height and position of the moving and counter knives.
13. Thread waste remains around the hook. (LK-1900BB/BNB, 1903BB/BNB)	13-1) Position of the suction nozzle is inappropriate.		Adjust the position of the suction nozzle.
	13-2) Thread waste is jammed in the dust back or in its route.		Cleaning the dust back, carry out air-blow to the tube in the pathway.
14. Many needle threads protrudes on the wrong side of material at button sewing. (LK-1903BB/BNB)	14-1) The height of the cloth presser bar of the button clamp unit is too low.		Increase the height of the cloth presser bar. (Fix the cloth presser bar in the state of pressing it against the button guide foot.)

(3) Electrical components (Refer to "Block diagram".)

WARNING :
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Trouble	Cause (1)	Cause (2)	Check and corrective measures
1. No display at the operation panel.	1-1) DC power is not supplied to the operation panel.	1-A) AC power is not supplied.	Check whether if a power supply is available at the power switch.
		1-B) The FLT board (3-phase specification, CE specification) has no power supply.	Check whether AC 200 to 240V is available between pins 4-5, 5-6 and 6-4 of CN1 in the FLT-T board or between pins 4-5 of CN1 in the FLT-CE board.
		1-C) The SDC board has no power supply.	Check whether AC 200 to 240V is available between pins 1-2 of CN16 in the SDC board. If no voltage is found, check the connections toward the FLT board. If there is no problem in connections, replace the FLT board.
		1-D) The MAIN board has no power supply.	Check whether 24V is available between pins 1-4 of CN38 in the MAIN board and 1-4 of CN13 in the SDC board. If no voltage is found, replace the SDC board.
		1-E) The operation panel has no power supply.	Confirm that the cable from the operation panel is connected to CN34 of the MAIN board. If there is no problem in connections, replace the MAIN board or the operation panel.
2. When turning ON the power, error E946 appears.	2-1) The model information written to the INT board can not read.		Check the connection of CN30 of the MAIN board. If there is no problem in connections, replace the MAIN board or machine head INT board.
3. When turning ON the power, error E916 appears.	3-1) The communicate with the SDC board can not be normally.		Check the connection of CN37 of the MAIN board and CN11 of the SDC board. If there is no problem in connections, replace the MAIN board or SDC board.
4. When turning ON the power, error E731 appears.	4-1) The encoder signal of machine head main motor can not read normally.		Check the connection of CN15 of the SDC board. If there is no problem in connections, replace the SDC board or main motor.

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Trouble	Cause (1)	Cause (2)	Check and corrective measures
5. When turning ON the READY key, error E007 appears.	5-1) The machine head main motor does not rotate.	1-A) The main motor is wrongly connected.	Check the connection of CN17 of the SDC board.
		1-B) The mechanism is locked.	Check the cause that the mechanism is locked.
		1-C) The driver is out of order.	Replace the SDC board.
6. When turning ON the READY key, error E929 appears.	6-1) The needle thread clamp motor does not operate normally. (LK-1900B Series, LK-1900BNB Series)	1-A) The main motor is wrongly connected.	Check the connection of CN45 of the MAIN board. If there is no problem in connections, replace the INT board or MAIN board or needle thread clamp motor.
		1-B) Abnormality of the encoder signal	Check the connection of CN77 of the INT board. If there is no problem in connections, replace the INT board or MAIN board or needle thread clamp motor.
		1-C) Motor power is not supplied.	Check the connection of CN31 of the MAIN board. If there is no problem in connections, replace the MAIN board or SDC board.
			Fuse F1 of the MAIN board has blown. Replace the fuse or MAIN board.
			Fuse F2 of the SDC board has blown. Replace the fuse or SDC board.
7. When turning ON the READY key, error E910 appears.	7-1) The work clamp foot lifting motor can not be carried out the origin retrieval.	1-A) The motor does not rotate.	Check the connection of CN44 of the MAIN board. If there is no problem in connections, replace the MAIN board.
			Check the resistance value of the work clamp foot lifting motor. If there is a problem with the resistance value, replace the work clamp foot lifting motor.
			Check the mechanism that can turn lightly until detecting the sensor origin. If there is a problem with the mechanism, remove the cause of torque.

To the next page

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Trouble	Cause (1)	Cause (2)	Check and corrective measures
		From the previous page	
		1-B) The origin signal can not be detected.	Check the connection of CN71 of the machine head INT board. If there is no problem in connections, replace the origin sensor or machine head INT board.
8. When turning ON the READY key, error E927 appears.	8-1) The Y-feed motor can not be carried out the origin retrieval.	1-A) The motor does not rotate.	Check the connection of CN43 of the MAIN board. If there is no problem in connections, replace the MAIN board.
			Check the resistance value of the Y-feed motor. If there is a problem with the resistance value, replace the Y-feed motor.
			Check the feeding mechanism in Y-direction whether there is an overload. If there is a problem with the mechanism, remove the cause of overload.
		1-B) Failure of the encoder signal	Check the connection of CN76 of the machine head INT board. If there is no problem in connections, replace the Y-feed motor or machine head INT board. (LK-1900B Series, LK-1900BNB Series)
9. When turning ON the READY key, error E926 appears.	9-1) The X-feed motor can not be carried out the origin retrieval.	1-A) The motor does not rotate.	Check the connection of CN42 of the MAIN board. If there is no problem in connections, replace the MAIN board.
			Check the resistance value of the X-feed motor. If there is a problem with the resistance value, replace the X-feed motor.
			Check the feeding mechanism in X-direction whether there is an overload. If there is a problem with the mechanism, remove the cause of overload.
		1-B) Failure of the encoder signal	Check the connection of CN75 of the machine head INT board. If there is no problem in connections, replace the X-feed motor or machine head INT board. (LK-1900B Series, LK-1900BNB Series)

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Trouble	Cause (1)	Cause (2)	Check and corrective measures
10. When the sewing machine is stopped, error E030 appears.	10-1) Stop position of the main shaft is out of the upper position.	1-A) Abnormal load of the main motor	Try to turn the main shaft by hand and check the mechanism whether there is an overload. If there is a problem with the mechanism, remove the cause of overload.
			Check whether the coupling that connects the motor and the upper shaft is loose. If there is a problem with the coupling, re-tighten screws.
		1-B) Abnormality of the main motor	Disconnect CN17 of the SDC board and measure the resistance value among pins. If there is a problem with the resistance value, replace the motor.
11. Error E302 appears.	11-1) The contact of machine head tilt detection switch is opened.	1-A) Connection defective	Check the connection of CN73 of the machine head INT board.
		1-B) The switch does not function.	Check whether the switch is turned on in the state that the machine head is in a normal state. If the switch is not turned ON, readjust it.
		1-C) The switch is out of order.	When pressing the switch, check whether the switch contact is closed. If the switch does not close, replace the switch.
12. Error E303 appears.	12-1) Z-phase signal does not enter.	1-A) The main shaft motor encoder cord is wrongly connected.	Check the state of the pin of CN15 of SDC board. (Loosening or missing of pins, disconnection, etc.) If there is no problem with the state of the pins, replace the motor or SC board.
13. Error E305 appears.	13-1) The motor does not rotate normally.	1-A) Load of the mechanical part is heavy.	Check the mechanism whether there is an overload or screws are loose.
		1-B) The motor is out of order.	Disconnect CN44 of the MAIN board and check the resistance value of motor. If there is a problem with the resistance value, replace the motor.

To the next page

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Trouble	Cause (1)	Cause (2)	Check and corrective measures
From the previous page			
	13-2) Thread trimming sensor signal does not enter.	2-A) Connection defective	Check the connection of CN72 of the machine head INT board.
		2-B) Sensor mounting position is inadequate.	Check the status that the sensor slit is entering to the thread trimming position sensor.
		2-C) The sensor is out of order.	If there is no problem in connections, check the sensor signal at the input check mode. If there is no change in the sensor signal, replace the sensor.
14. Error E733 appears.	14-1) The main shaft is vibrating.	1-A) AB-phase signal of the main shaft motor is not stable.	The coupling that connects the main motor and main shaft is too far. Re-adjust it to the proper clearance.
			Encoder signal of the main shaft motor is not stable. Replace the main motor.
15. Error E811 appears.	15-1) Power supply voltage is too high. (AC280V or more)	1-A) The supplying power is high.	Check the supplying power. Change the connection of power supply.
		1-B) Detecting circuit is out of order.	Replace the SDC board.
16. Error E813 appears.	16-1) Power supply voltage is too low. (AC160V or less)	1-A) The supplying power is low.	Check the supplying power. Change the connection of power supply.
		1-B) Detecting circuit is out of order.	Replace the SDC board.
17. Error E901 appears.	17-1) The main motor driving circuit of SDC board is generating an error signal.	1-A) IPM heat generation is excessive.	Check the status of connections or the adhesion of dust at CN33 (fan) of the MAIN board.
		1-B) The main motor is out of order.	Disconnect CN17 of the SDC board and check the winding resistance value of main motor. If there is a problem with the resistance value, replace the main motor.
		1-C) Driving circuit is out of order.	Replace the SDC board.

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Trouble	Cause (1)	Cause (2)	Check and corrective measures
18. Error E903 appears.	18-1) 85V power supply of the SDC board is not output.	1-A) Fuse F1 of the MAIN board has blown.	Replace fuse F1 of the MAIN board and measure the resistance value of pins 1-2 of CN31. If there is short circuit, replace the MAIN board.
		1-B) There is no output of the SDC board.	Disconnect CN31 of the MAIN board and check the output of the SDC board. Turn on the power. If DC85V is not generated, replace the SDC board.
19. Error E904 appears.	19-1) 24V power supply of the SDC board is not output.	1-A) DC85V is not generated by the SDC board.	Disconnect CN31 of the MAIN board and check the output of the SDC board. Turn on the power. If DC85V is not generated, replace the SDC board.
		1-B) 24V system is out of order.	Disconnect CN38 of the MAIN board and check the output of the SDC board. If there is no 24V output between pins 1-4, replace the SDC board.
			Measure the resistance value of pins 1-4 of CN38 of the MAIN board. If there is short circuit, replace the MAIN board.
20. Error E905 appears.	20-1) Cooling of the SDC board is not possible.	1-A) Fan does not rotate.	Check the status of connections or the adhesion of dust at CN33 (fan) of the MAIN board.
		1-B) Heat dissipation of the element is not possible.	Check the status that each elements of the SDC board is fixed to heat sink.
21. Error E914 appears.	21-1) The main shaft is not synchronized to the feed mechanism.	1-A) The main motor can not be rotated normally.	Check whether there is an overload on the main shaft.
			Check whether screws of main shaft coupling is loose.
			Disconnect CN17 of the SDC board and check the winding resistance value of main motor. If there is a problem with the resistance value, replace the main motor. If there is no problem in the main motor, replace the SDC board.

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Trouble	Cause (1)	Cause (2)	Check and corrective measures
22. Error E915 appears.	22-1) Communication between the MAIN and panel cannot be performed.	1-A) Connection defective	Check whether there is loose in CN34 of the MAIN board.
		1-B) Control circuit is out of order.	Replace the operation panel or MAIN board.
23. Error E918 appears.	23-1) Cooling of the MAIN board is not possible.	1-A) Fan does not rotate.	Check the status of connections or the adhesion of dust at CN33 (fan) of the MAIN board.
		1-B) Heat dissipation of the element is not possible.	Make sure that all setscrews of the main board are tightened.
24. When the sewing machine is stopped, error E396 appears.	24-1) It does not become to the state that the shorter thread remaining thread trimming cylinder turns ON and the sensor turns OFF before origin retrieval or during shorter thread remaining thread trimming. (LK-1900BB/BNB, LK-1903BB/BNB)	1-A) An air is not supplied.	Turn OFF the power switch and check an air pressure.
		1-B) Cylinder sensor mounting position is inadequate.	Make sure that the cylinder sensor LED lights up in the initial state of power supply ON and LED goes out in the operating position.
		1-C) Cylinder malfunction	Make sure that the cylinder can be driven. If the cylinder can not be driven, remove its cause. Make sure that there is any loosening or missing of pins on CN46 of MAIN board.
25. When the sewing machine is stopped, error E397 appears.	25-1) It does not become to the state that the suction nozzle cylinder turns ON and the sensor turns OFF during shorter thread remaining thread trimming. (LK-1900BB/BNB, LK-1903BB/BNB)	1-A) Cylinder sensor mounting position is inadequate.	Make sure that the cylinder sensor LED lights up in the initial state of power supply ON and LED goes out in the operating position.
		1-B) Cylinder malfunction	Make sure that the cylinder can be driven. If the cylinder can not be driven, remove its cause. Make sure that there is any loosening or missing of pins on CN46 of MAIN board.

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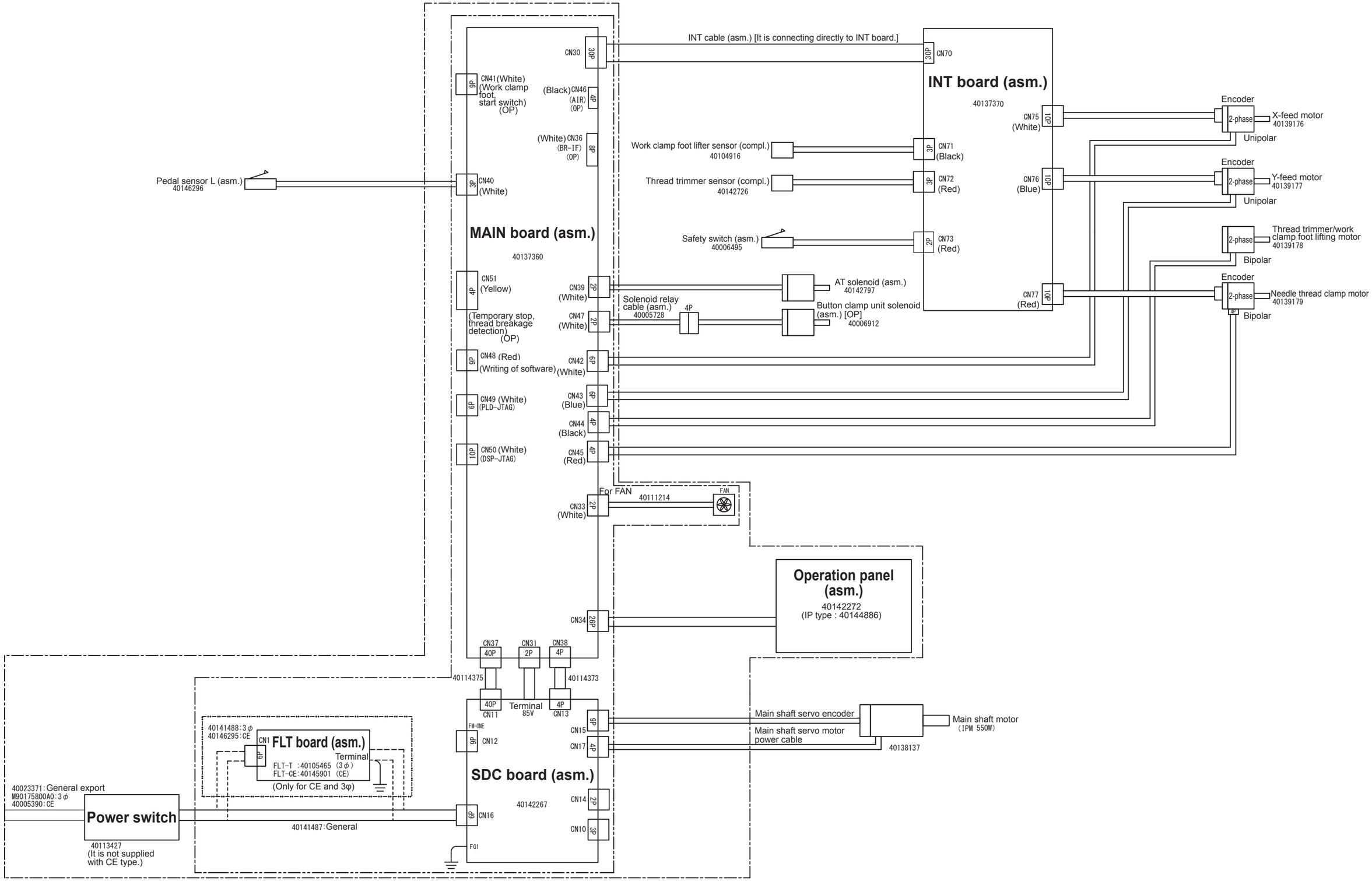
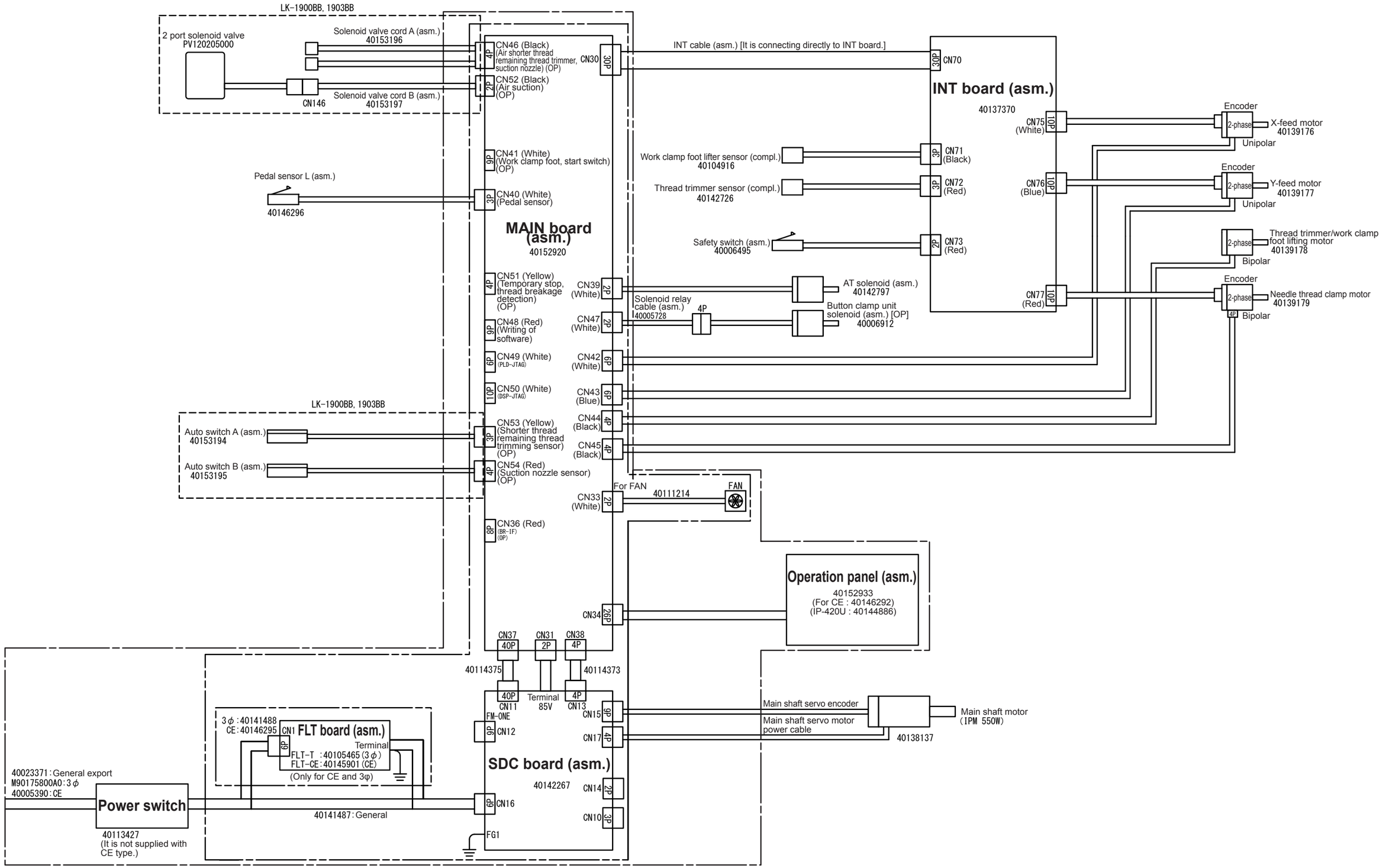
Trouble	Cause (1)	Cause (2)	Check and corrective measures
26. When turning ON the READY key, error E398 appears.	26-1) The shorter thread remaining thread trimming cylinder sensor does not turn ON at the time of origin retrieval or during sewing operation. (LK-1900BB/BNB, LK-1903BB/BNB)	1-A) Power is not supplied to the cylinder sensor.	Turn OFF the power switch, check an air pressure, the shorter thread remaining thread trimming cylinder sensor and there is any loosening or missing of pins on CN53 of MAIN board.
		1-B) Cylinder sensor mounting position is inadequate.	Make sure that the cylinder sensor LED lights up in the initial state of power supply ON and LED goes out in the operating position.
27. When turning ON the READY key, error E399 appears.	27-1) The suction nozzle cylinder sensor does not turn ON at the time of origin retrieval or during sewing operation. (LK-1900BB/BNB, LK-1903BB/BNB)	1-A) Power is not supplied to the cylinder sensor.	Turn OFF the power switch, check an air pressure, the shorter thread remaining thread trimming cylinder sensor and there is any loosening or missing of pins on CN54 of MAIN board.
		1-B) Cylinder sensor mounting position is inadequate.	Make sure that the cylinder sensor LED lights up in the initial state of power supply ON and LED goes out in the operating position.

11. Circuit diagrams

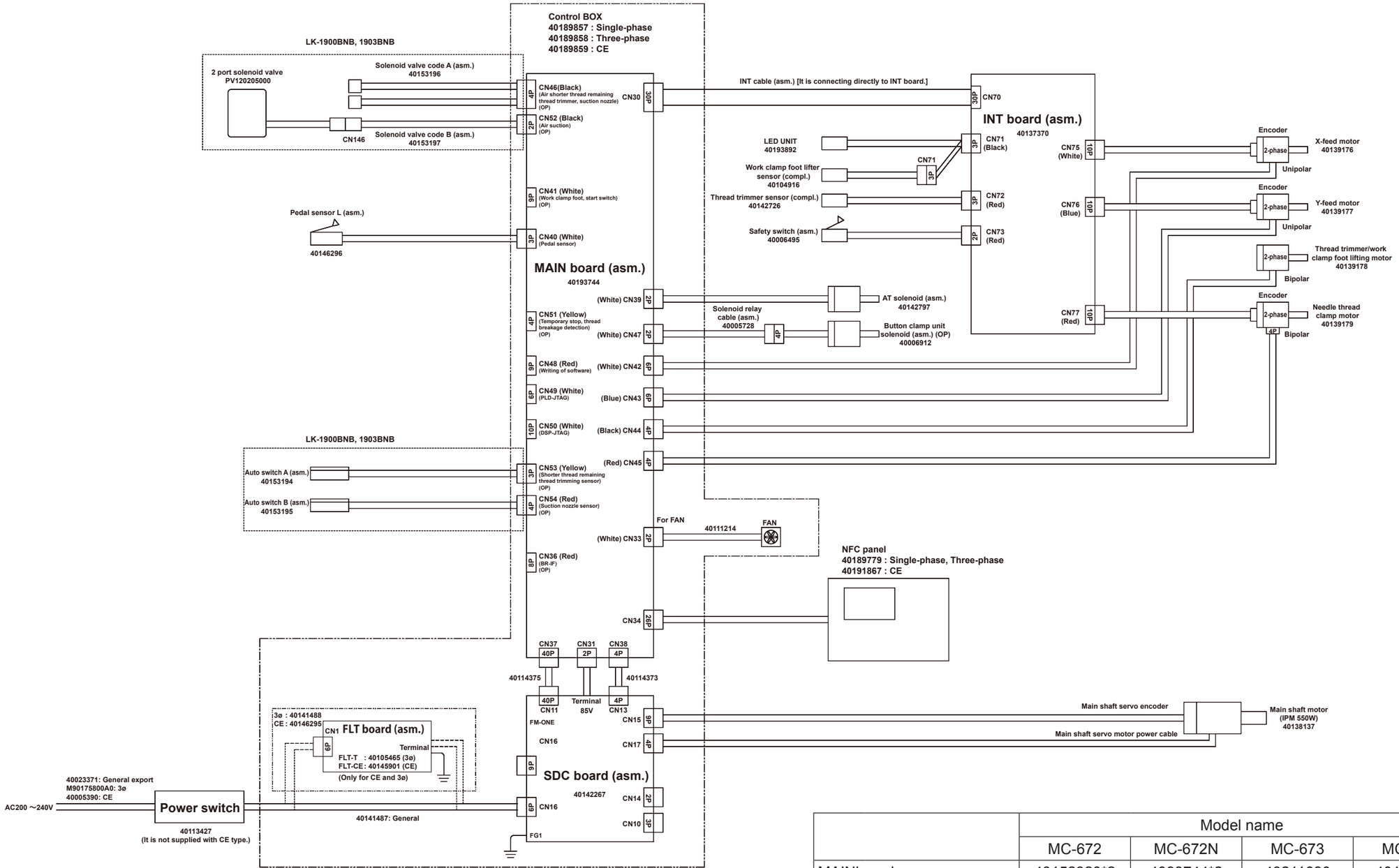
(1) Block diagram_Standard specification (MC-670)



(2) Block diagram_Standard specification_Short tail specification (MC-672)



(3) Block diagram_Standard specification_Short tail specification_NFC Type (MC-672N)



		Model name			
		MC-672	MC-672N	MC-673	MC-676
MAINboard		40152920*2	4093744*2	40211680	40179421
Panel	Standaed panel	◎	○ *1	X	△
	NFC panel	○	◎	X	△
	S panel	△	△	◎	X
	10/20Standaed panel	△	△	X	◎

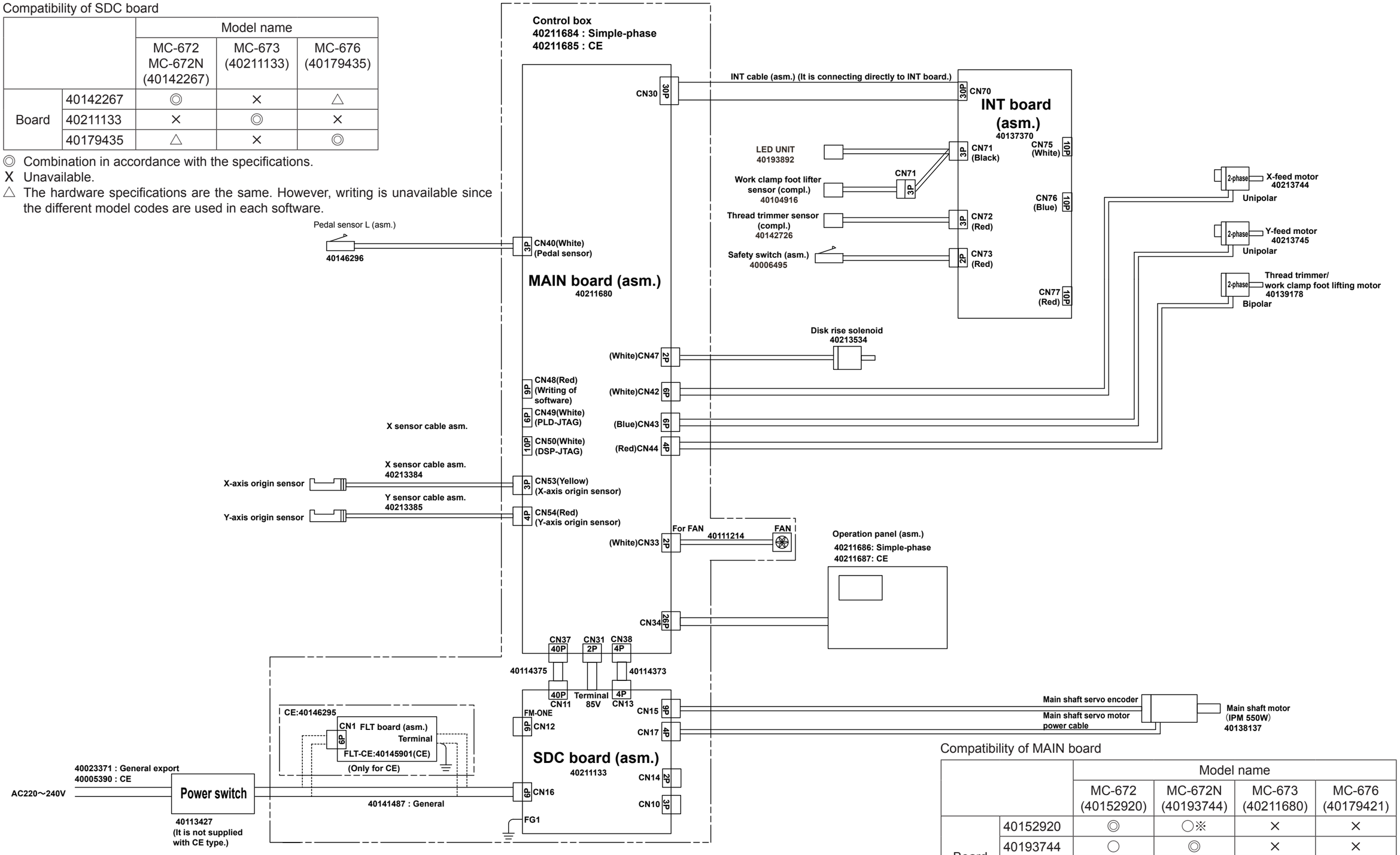
◎ Combination in accordance with the specifications.
○ Combination that becomes available by installing the software.
X Unavailable.
△ Writing is unavailable since the different model codes are used in each software.
*1 The NFC function is unavailable.
*2 The hardware specifications are the same. A software not supporting NFC is installed in 4015290 and a software supporting NFC is installed in 40193744.

(4) Block diagram_Simple Type (MC-673)

Compatibility of SDC board

		Model name		
		MC-672 MC-672N (40142267)	MC-673 (40211133)	MC-676 (40179435)
Board	40142267	◎	×	△
	40211133	×	◎	×
	40179435	△	×	◎

◎ Combination in accordance with the specifications.
X Unavailable.
△ The hardware specifications are the same. However, writing is unavailable since the different model codes are used in each software.

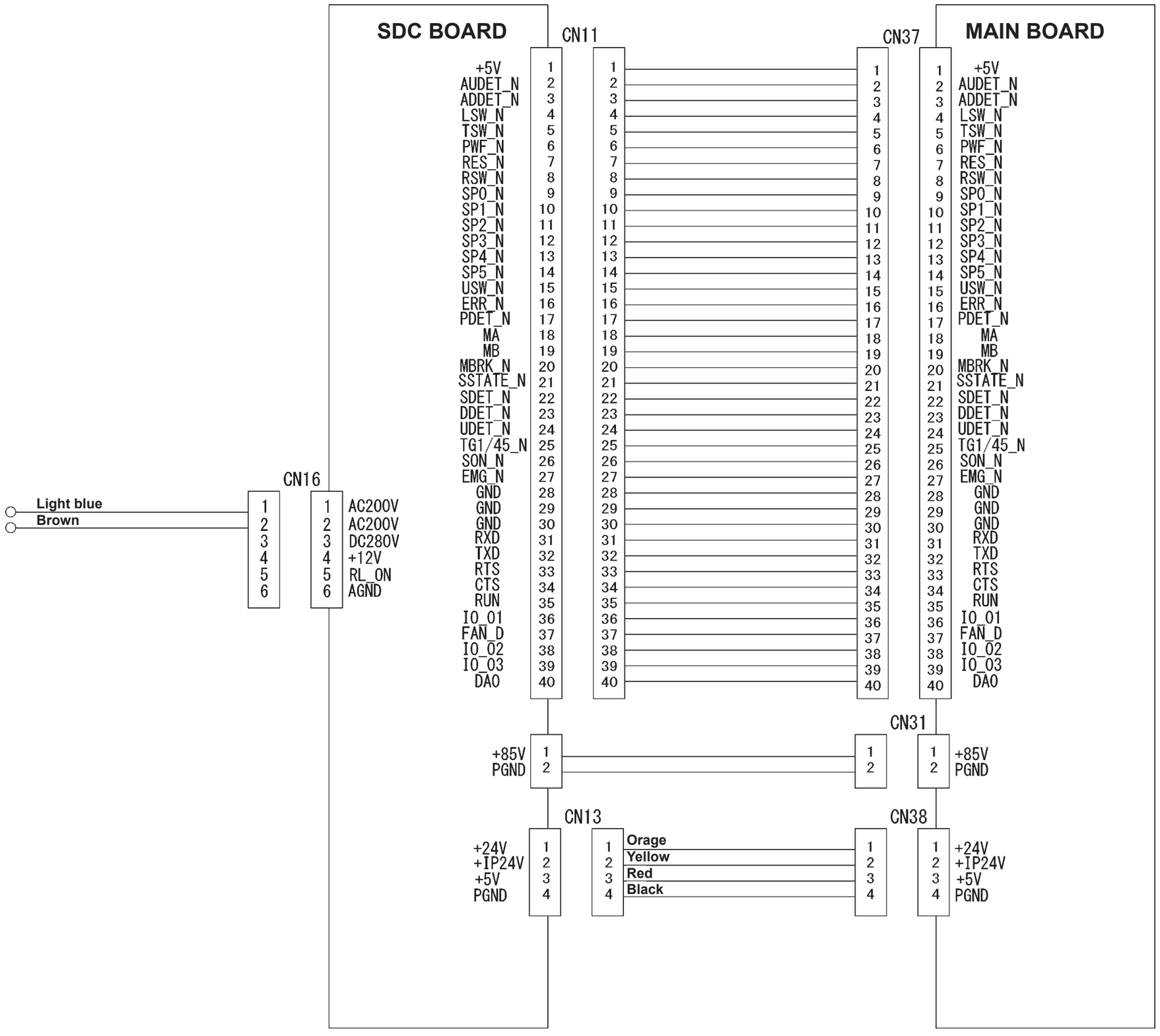


Compatibility of MAIN board

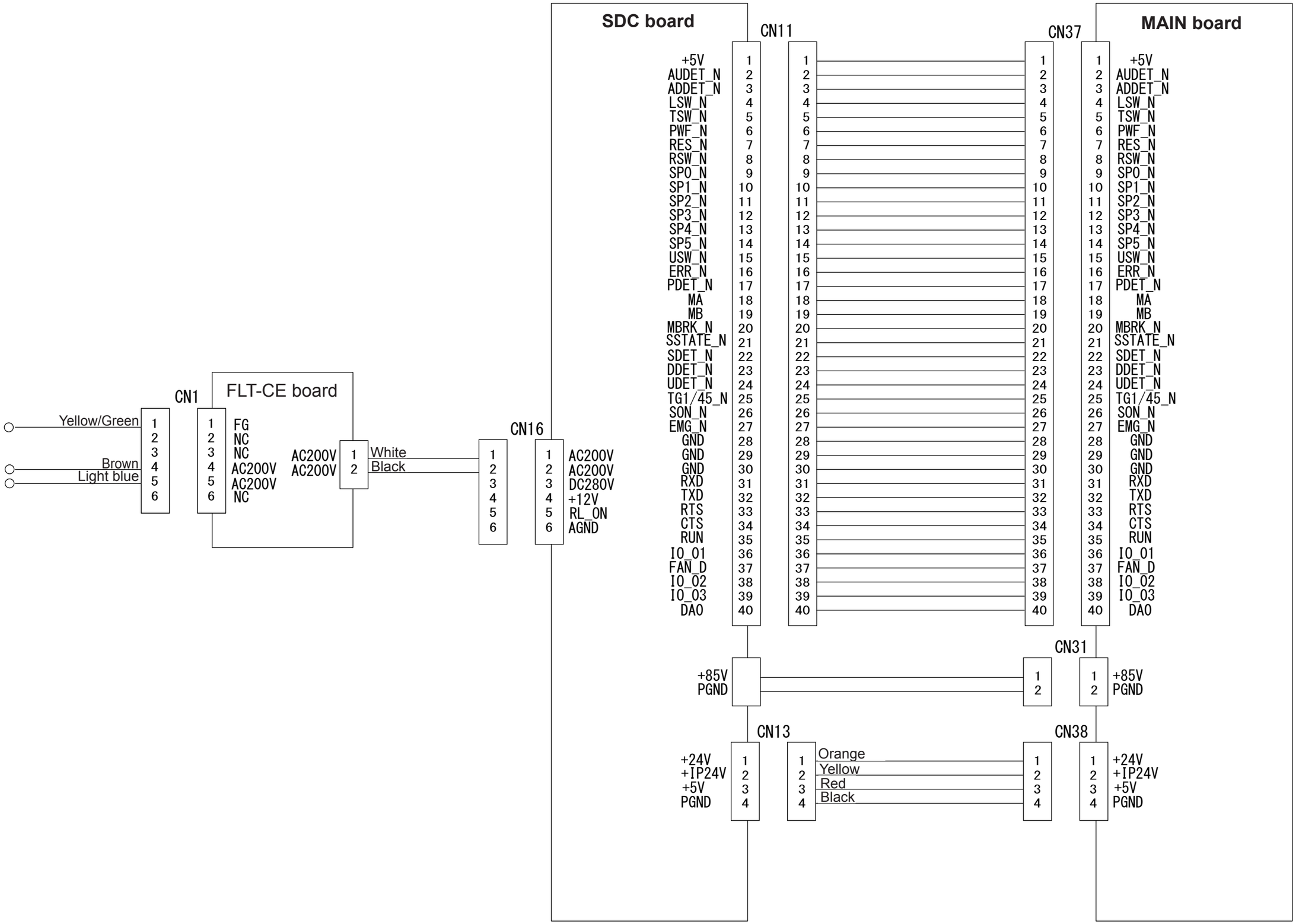
		Model name			
		MC-672 (40152920)	MC-672N (40193744)	MC-673 (40211680)	MC-676 (40179421)
Board	40152920	◎	○※	×	×
	40193744	○	◎	×	×
	40211680	×	×	◎	×
	40179421	×	×	×	◎

◎ Combination in accordance with the specifications.
○ Combination that becomes available by installing the software.
X Unavailable.
* The NFC function is unavailable.

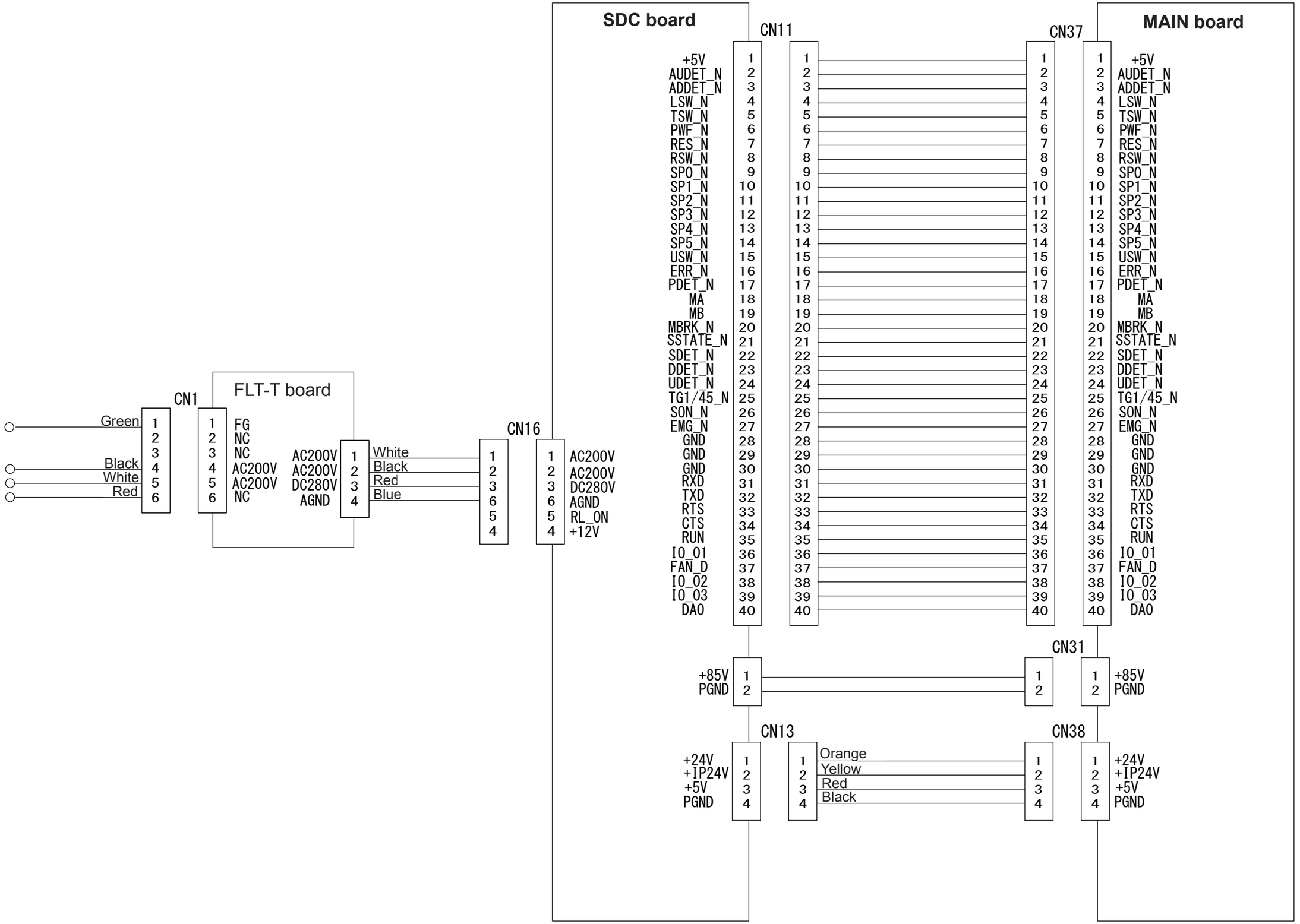
(5) Power supply circuit diagram (Single-phase)



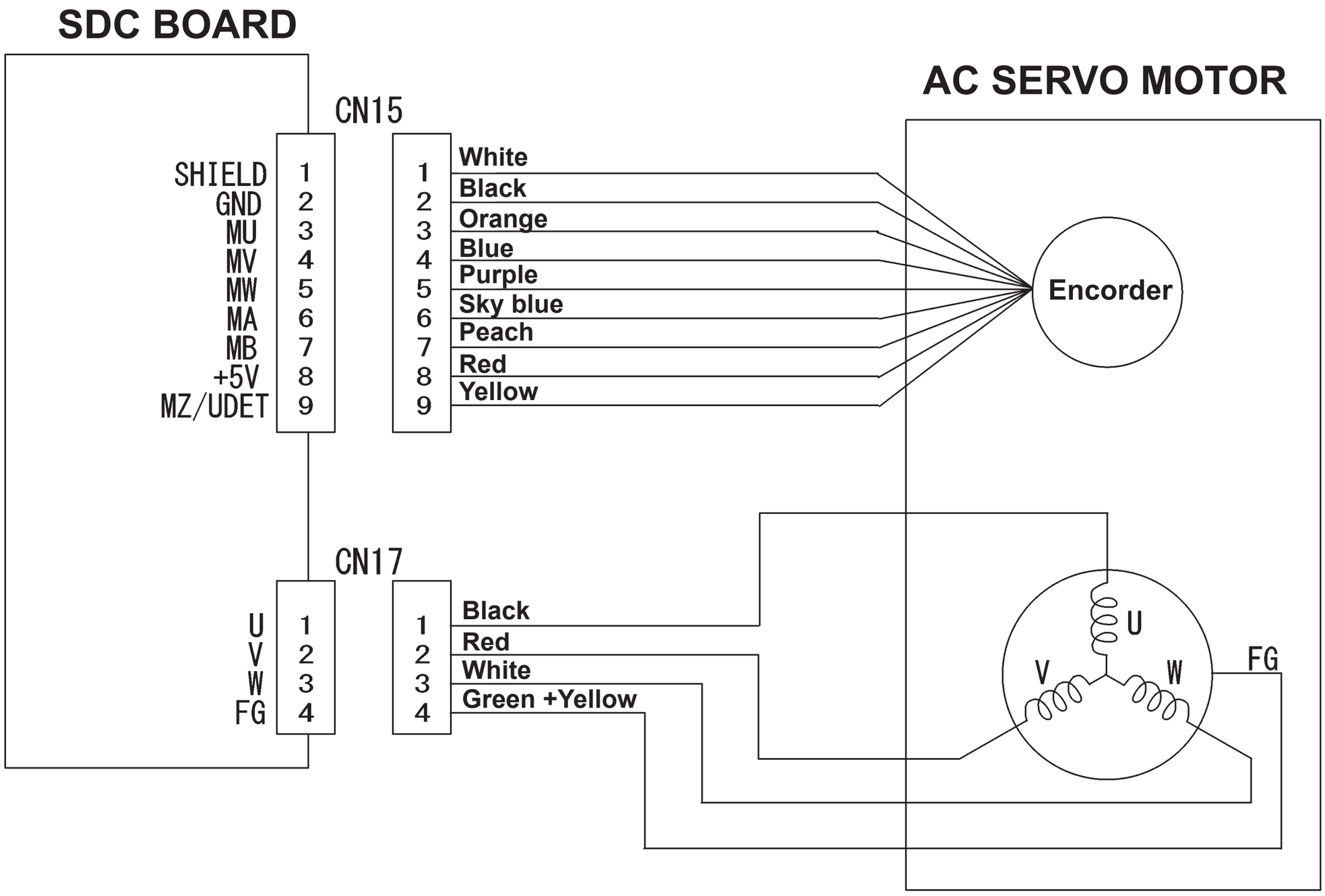
(6) Power supply circuit diagram (Single-phase CE)



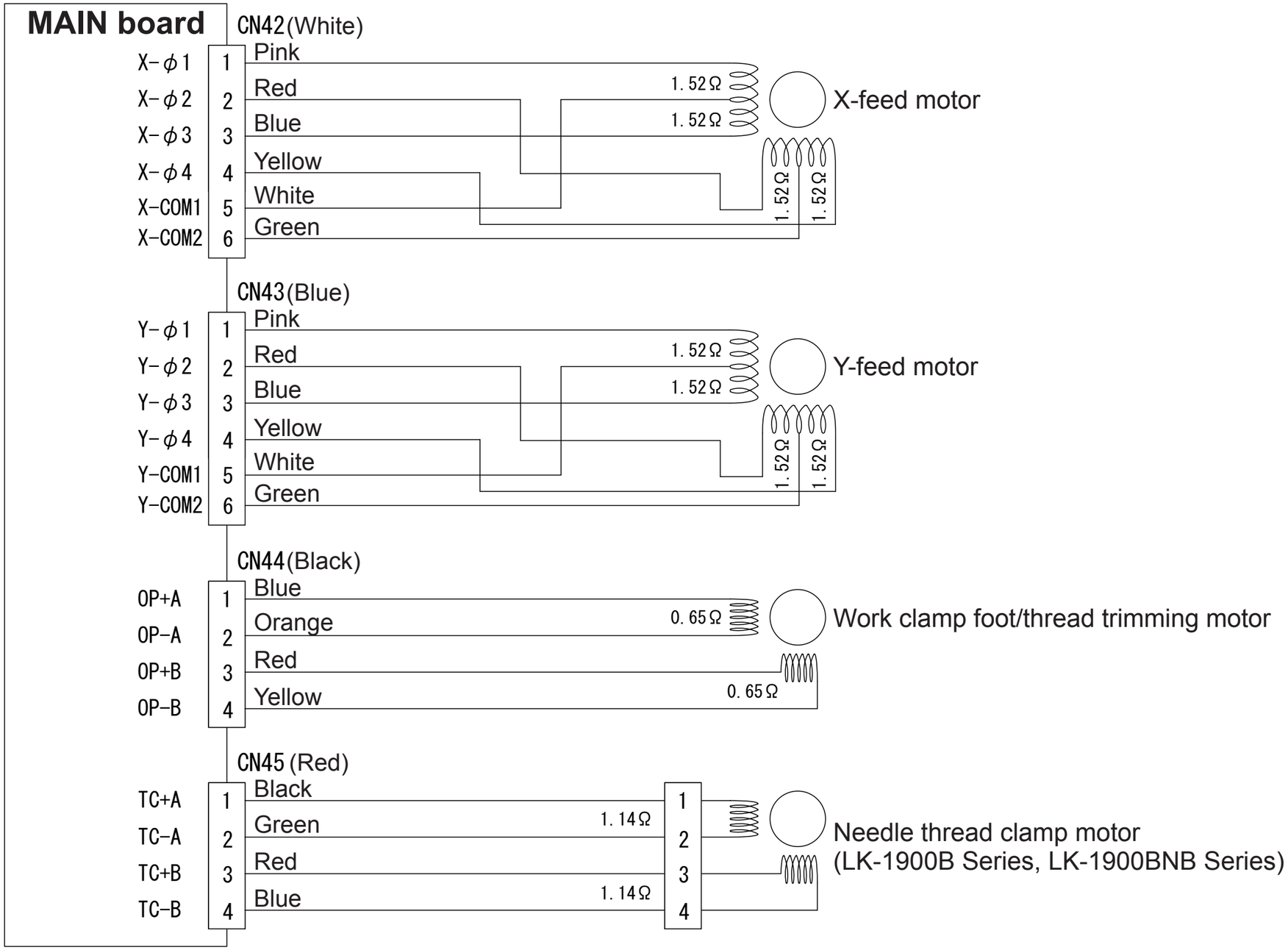
(7) Power supply circuit diagram (3-phase)



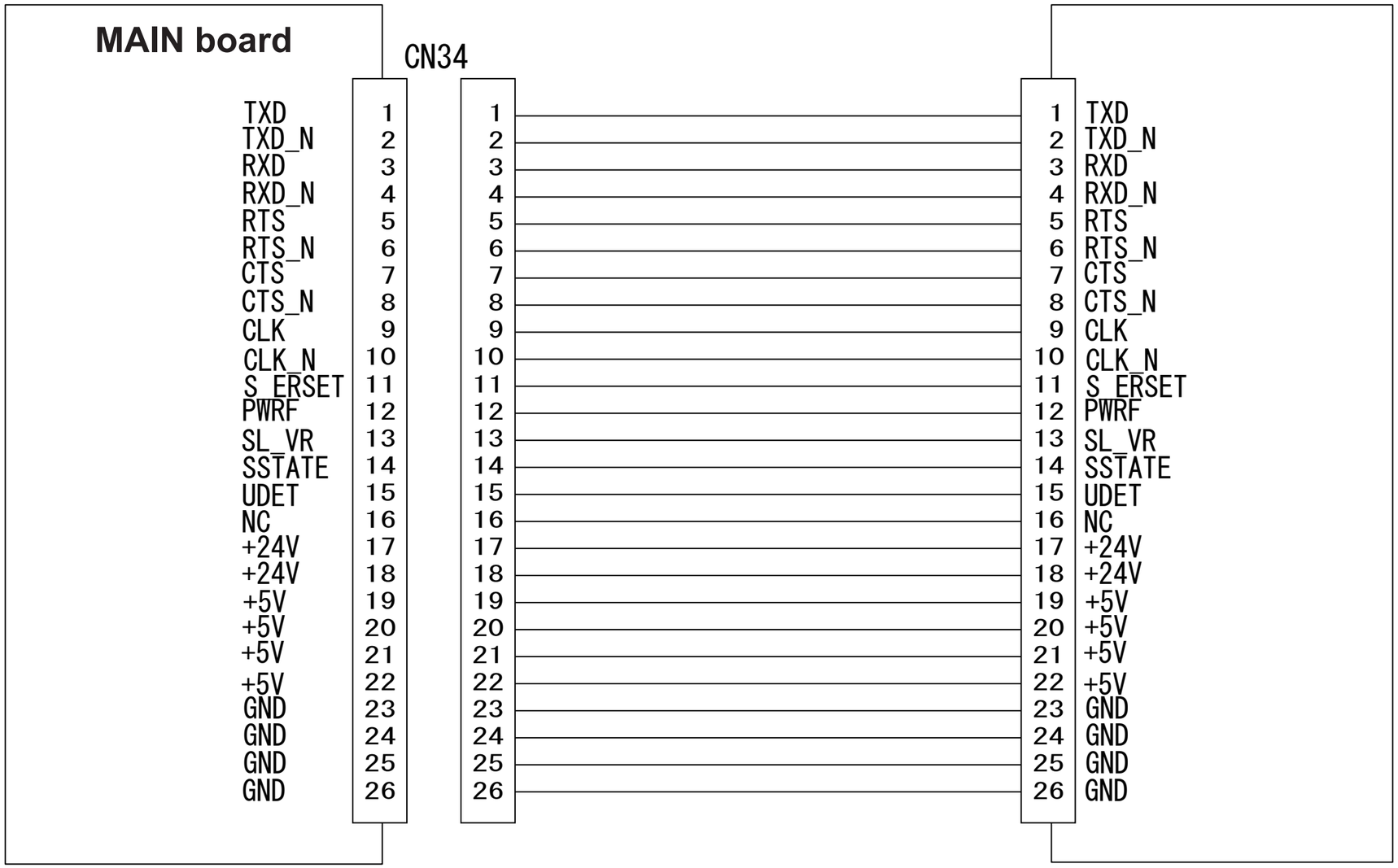
(8) Servo motor circuit diagram



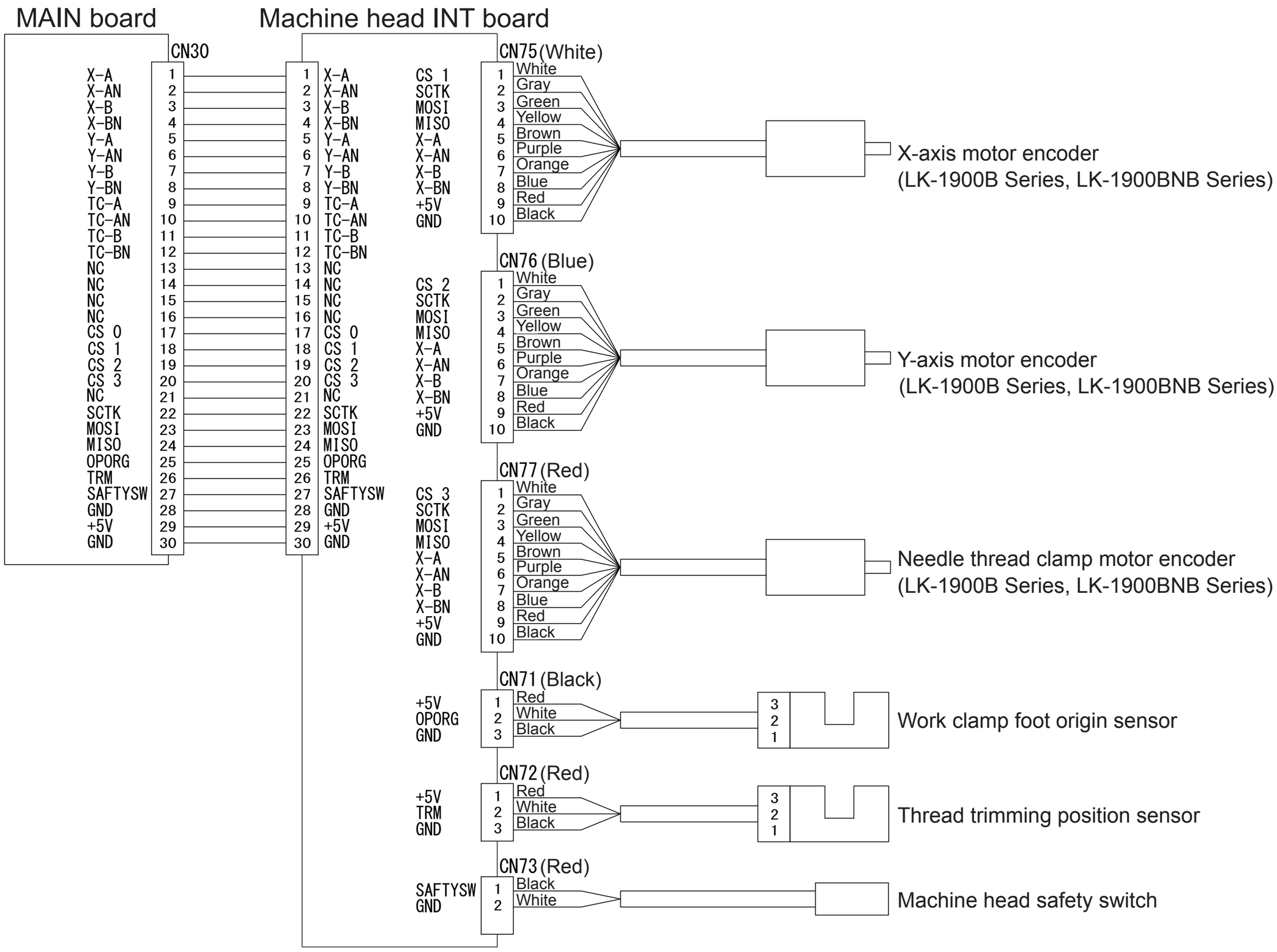
(9) Stepping motor circuit diagram



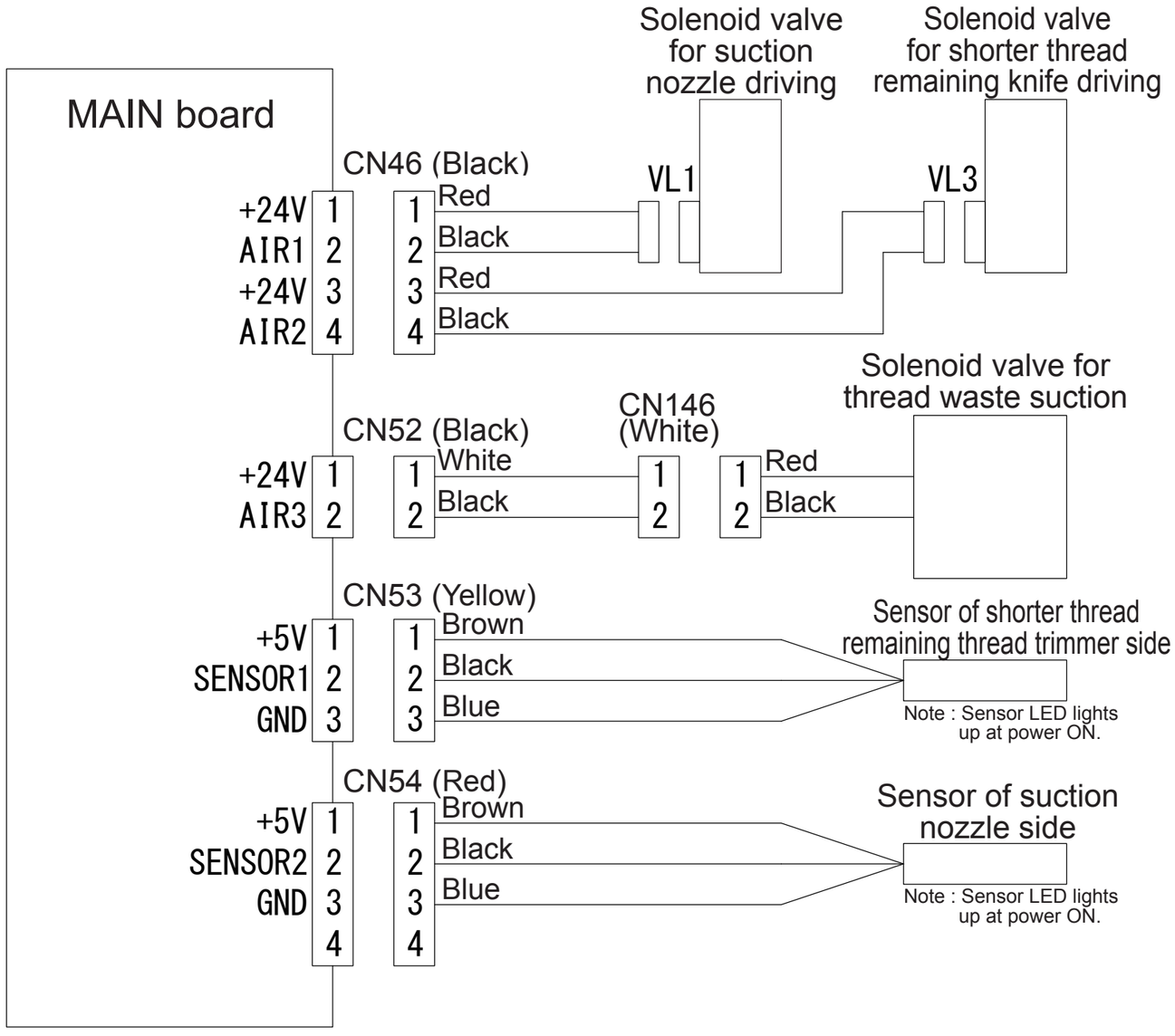
(10) MAIN · Operation panel circuit diagram



(11) Machine head sensor circuit diagram

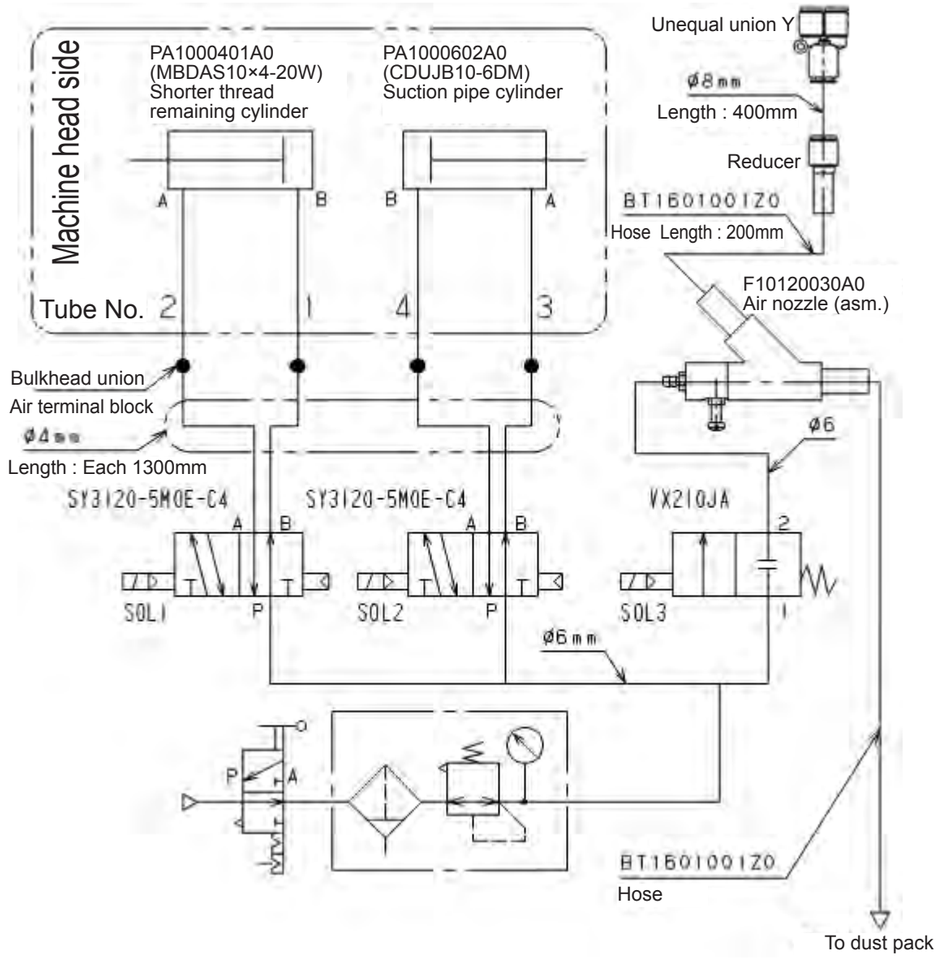


(12) Air circuit diagram (LK-190*BB, LK-190*BNB)



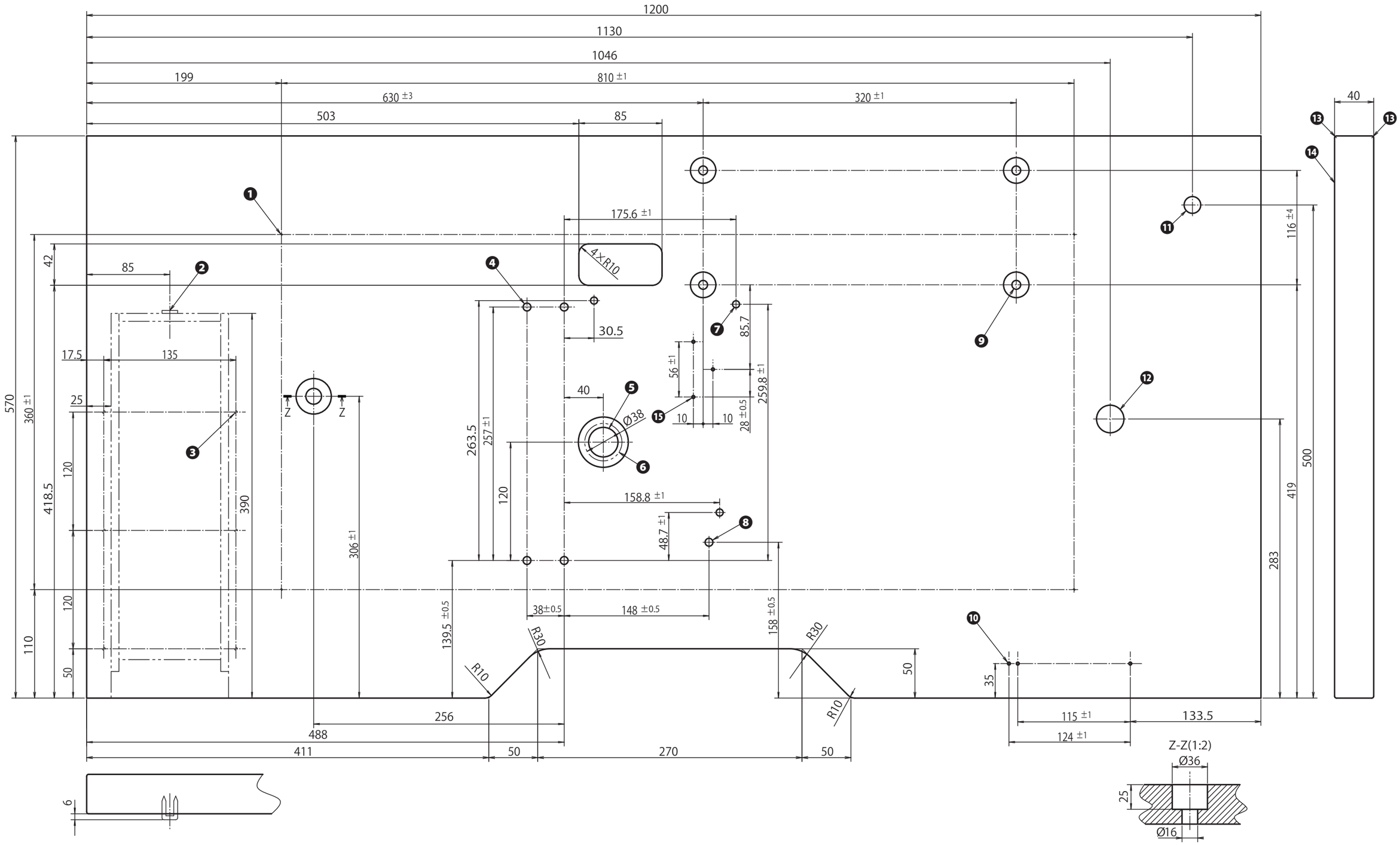
12. Air circuit diagram

(Only the LK-190*BB, LK-190*BNB)



13. Table drawings

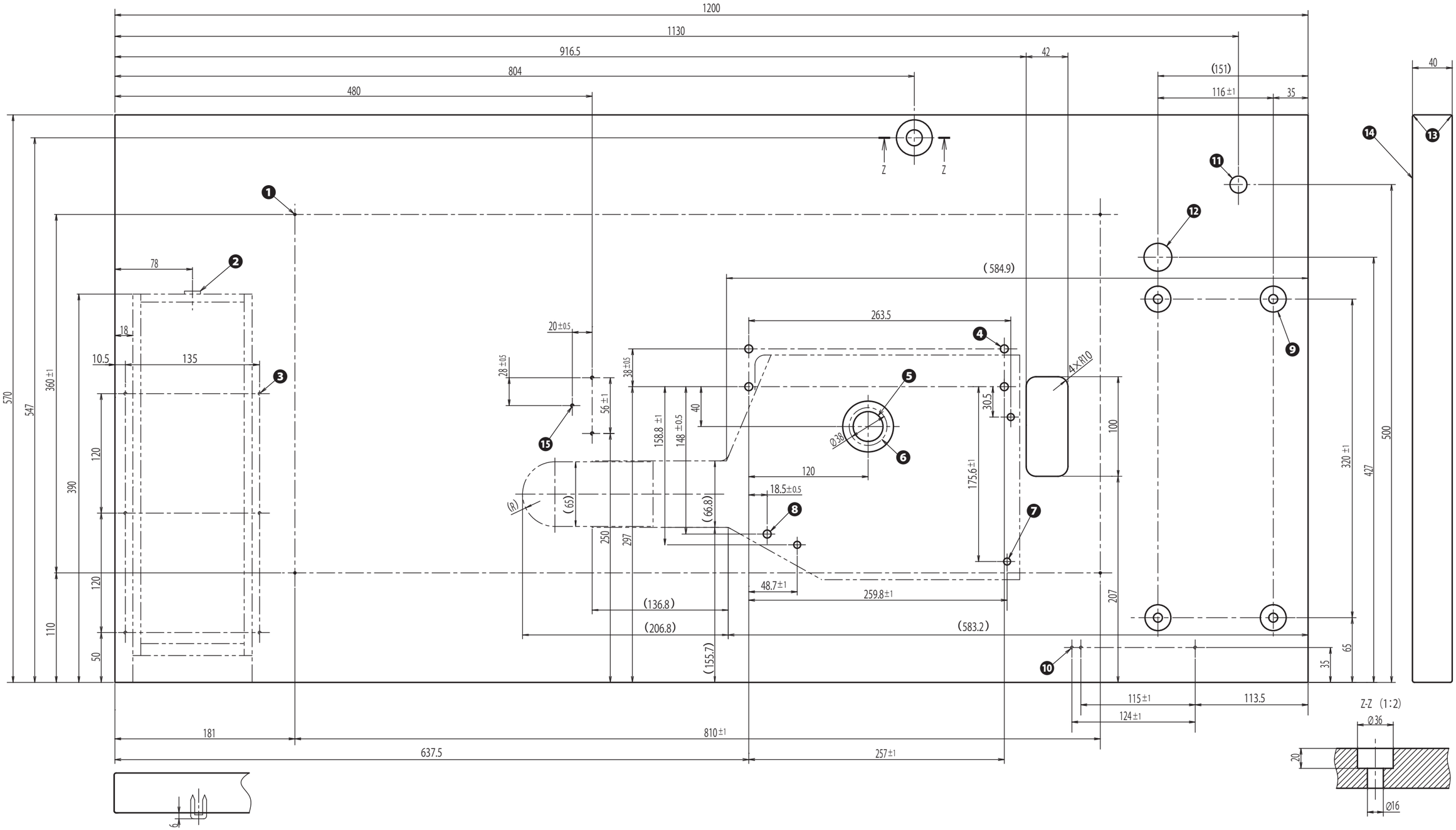
(1) Table type for longitudinal Installation



❶ 4×2 drilled hole, depth 10 on the rear side [Stand installing hole]
❷ Drawer stopper installing position (One place on the rear side)
❸ 6×3 drilled hole, depth 10 on the rear side [Drawer installing hole]
❹ 4×8 drilled hole
❺ 30 drilled hole, 51 spot face depth 16
❻ For oil drain funnel installing
❼ 3×7 drilled hole, depth 6
❽ 8 drilled hole
❾ 4×9 drilled hole, 26 spot face depth 1
❿ 3×3 drilled hole, depth 10 on the rear side [Power switch installing hole]
⓫ 17 drilled hole
⓬ 28 drilled hole
⓭ R2 (all corners)
⓮ Face side
⓯ 3×3 drilled hole, depth 10 on the rear side [Pedal installing hole]

For LK-1900B/BN, 1900BB/BNB
For LK-1901B/BN
For LK-1903B/BN, 1903BB/BNB
Part No. : 40143093

(2) Table type for lateral Installation



❶ 4×2 drilled hole, depth 10 on the rear side [Stand installing hole]
❷ Drawer stopper installing position (One place on the rear side)
❸ 6×3 drilled hole, depth 10 on the rear side [Drawer installing hole]
❹ 4×8 drilled hole
❺ 30 drilled hole, 51 spot face depth 16
❻ For oil drain funnel installing
❼ 3×7 drilled hole, depth 6
❽ 8 drilled hole
❾ 4×9 drilled hole, 26 spot face depth 7
❿ 3×3 drilled hole, depth 10 on the rear side [Power switch installing hole]
⓫ 17 drilled hole
⓬ 28 drilled hole
⓭ R2 (all corners)
⓮ Face side
⓯ 3×3 drilled hole, depth 10 on the rear side [Pedal installing hole]

For LK-1902B/BN

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An environmental management system to promote and conduct the following:
(1) Eco-friendly development of products and technologies
(2) Green procurement and green purchasing
(3) Energy conservation (reduction in carbon-dioxide emissions)
(4) Resource saving (reduction of papers purchased, etc.)
(5) Reduction and recycling of waste
in the activities of research, development, design, sales, distribution, and maintenance services of industrial sewing machines and industrial robots, etc., including sales and maintenance services of data entry systems.

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* **The description covered in this engineer's manual is subject to change for improvement of the commodity without notice.**

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