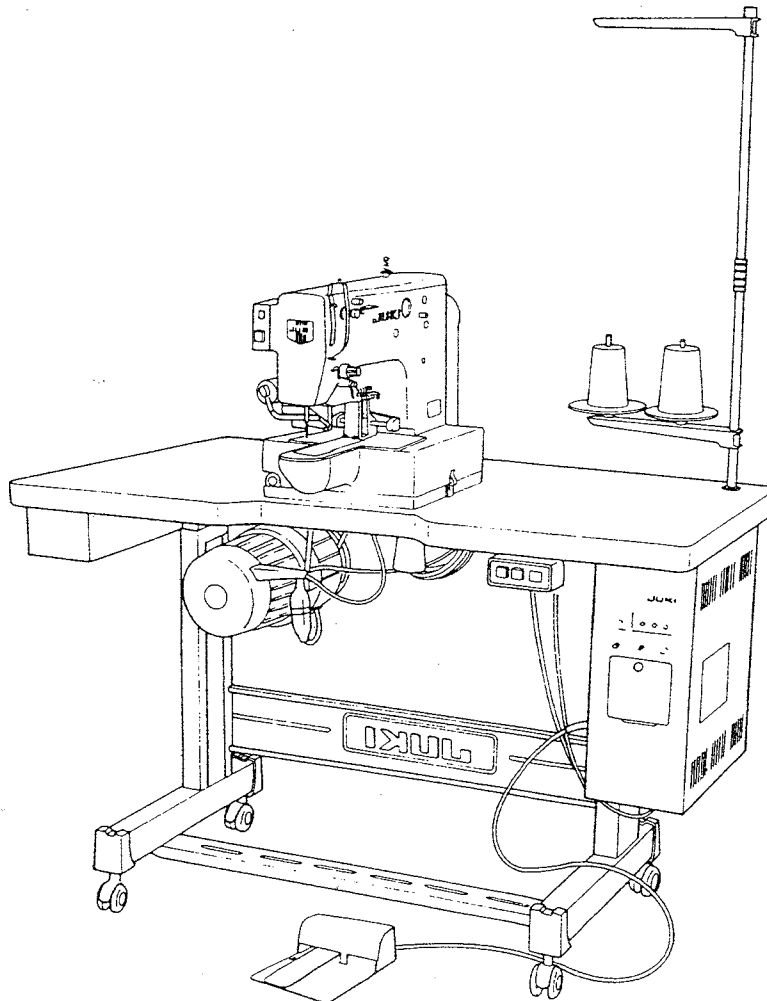


# JUKI

Compact Type 1-Needle Lockstitch  
Computer Control Cycle Machine

# AMS-205C AMS-206C

# INSTRUCTION MANUAL



No.00

29056306

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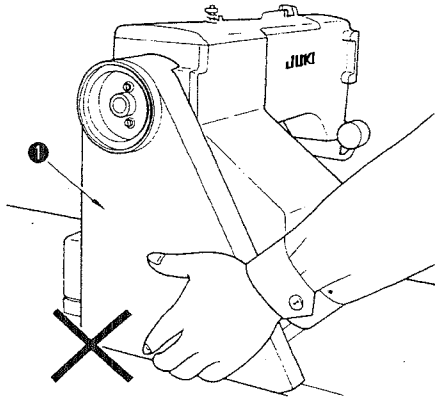
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Congratulations on your purchase of JUKI Model AMS-205C/206C!

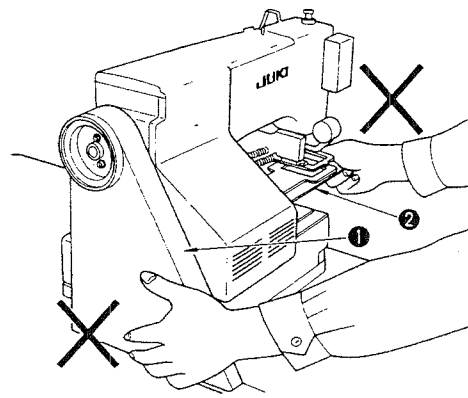
Please read this Instruction Manual carefully before using this unit in order to get the most out of it and to enjoy using it for a long time.

### CAUTIONS BEFORE OPERATION

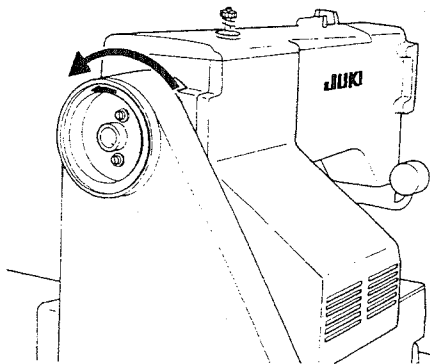
AMS-205C



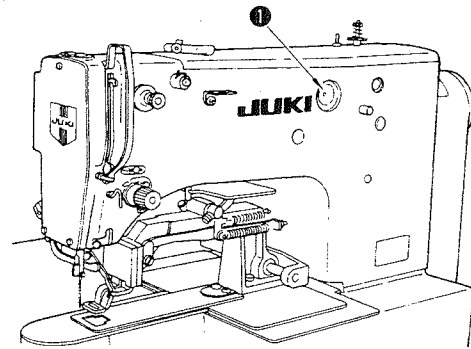
AMS-206C



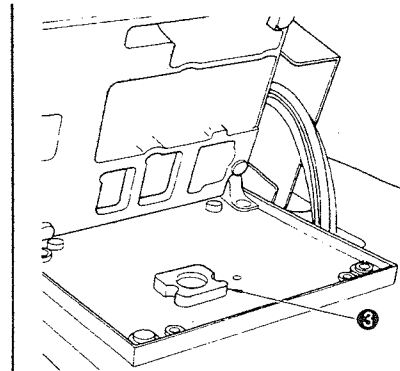
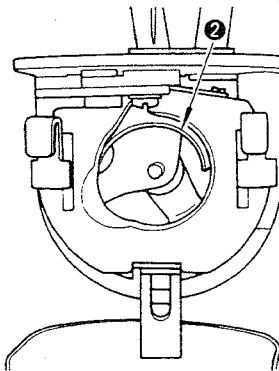
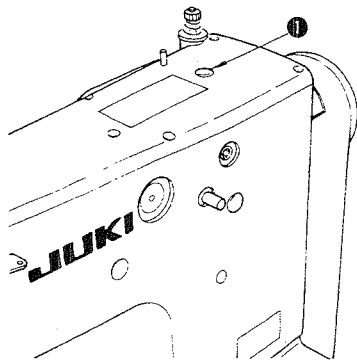
1. Do not hold belt cover ① or throat plate auxiliary cover ② (in case of Model AMS-206C) when carrying your AMS-205C/206C.



2. The sewing machine should run counterclockwise (in the direction of the arrow) as observed from the pulley side. Never allow the machine to run in the reverse direction.



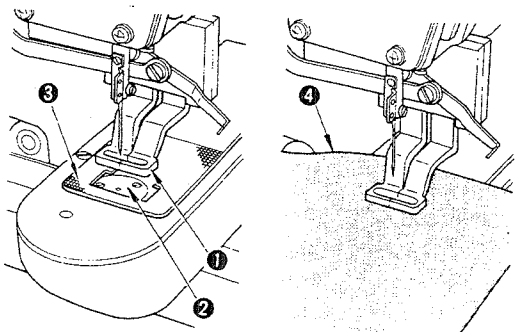
3. Be sure to supply oil until the oil level reaches the red mark of oil gauge ①. After that, refill the machine with oil up to the red mark once a day.



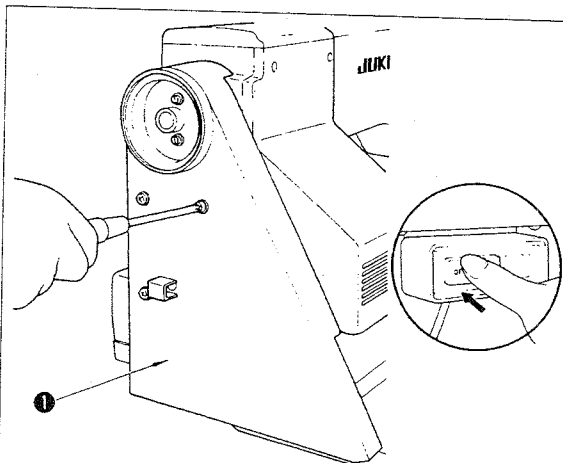
4. Before starting the machine which has been newly set up or has not been used for a long period of time, apply a few drops of the lubricating oil to the crank assembly through hole ①, one drop to racing surface ②, and infiltrate sufficient amount of the lubricating oil to machine bed oil felt ③.

## CAUTIONS IN OPERATION

### AMS-205C Only

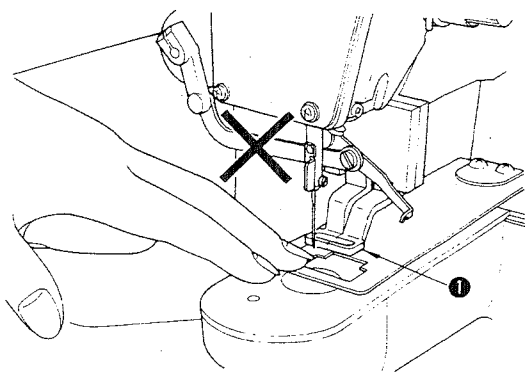


1. When a sewing pattern is being read, the needle threading switch is turned ON, or the bobbin winder switch is turned ON, work clamp foot ① might come into contact with throat plate ② and might make some scratches on the throat plate. Be sure to insert a piece of cloth ④ or alike as a buffer between work clamp foot ① and feed plate ③ to prevent scratches on the throat plate.



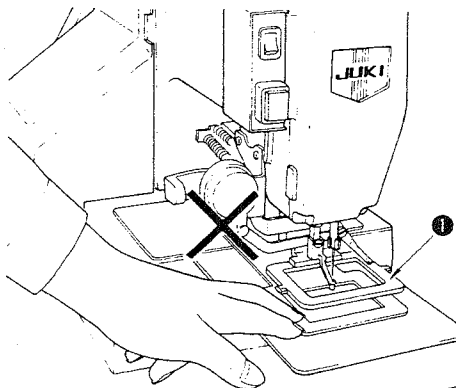
2. Be sure to turn the power switch OFF before removing belt cover ①. Do not operate the machine with the belt cover removed.

### AMS-205C

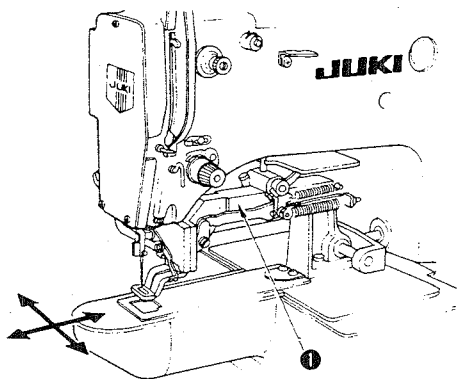


3. When a sewing pattern change is made, the needle threading switch is turned ON, the bobbin winder switch is turned ON, or the foot switch is turned ON, the work clamp foot ① comes down automatically. Be sure not to place your fingers under the work clamp foot. Keep your fingers away from the work clamp foot while the machine is in operation.

### AMS-206C

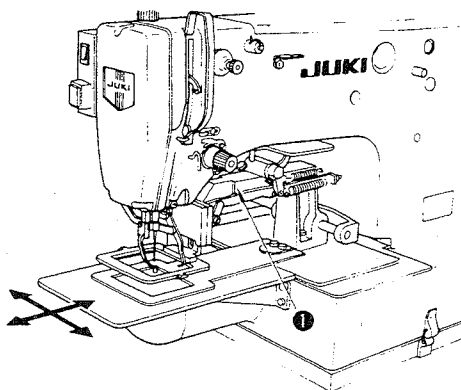


### AMS-205C

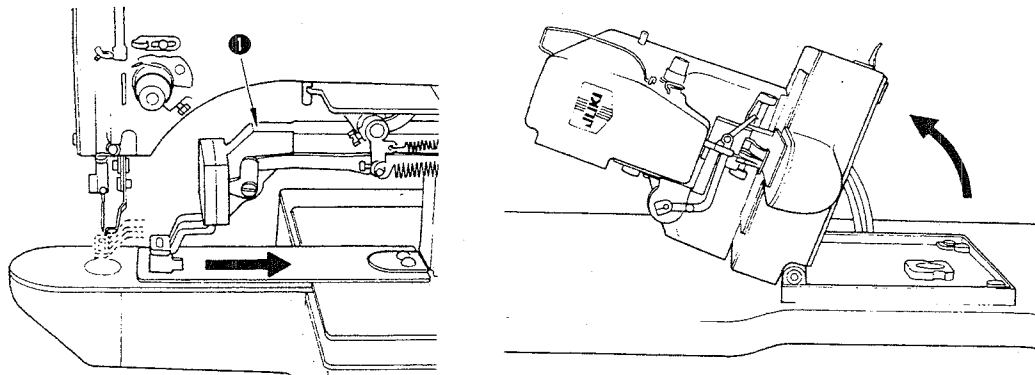


4. To assure accurate pattern sewing, push feed plate ① by hand fully forward and backward, then fully to the right and left once every day before turning the power ON. Never do this after the machine has been powered up.

### AMS-206C



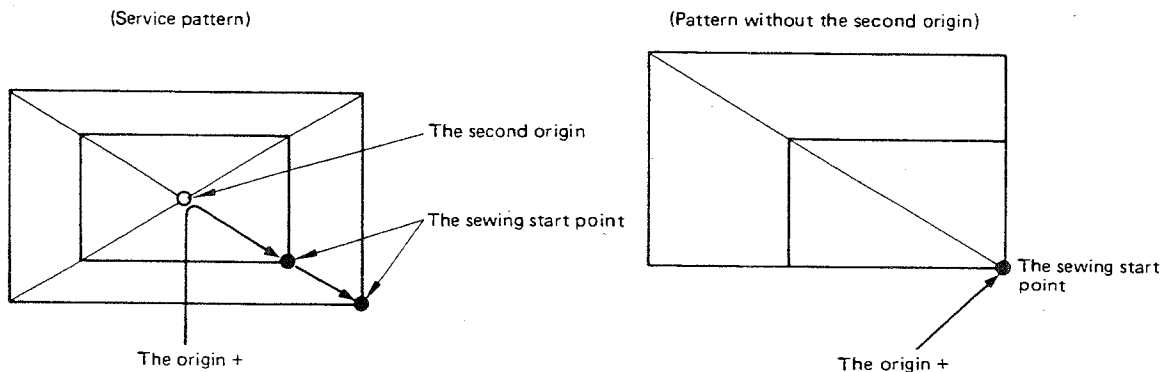
### AMS-205C Only



5. When tilting the machine head, be sure to remove the needle between the work clamp foot, or move feed bracket ① so that the needle does not lie between the work clamp foot. Or there might occur a needle breakage or a needle bent.

### 6. Pattern enlargement/reduction for the AMS-205C/AMS-206C

The reference point for the service patterns which have been factory-inputted is the second origin. The second origin is set 13 mm away from the origin. And the reference point for enlarging/reducing have been factory-set to the second origin. Therefore, enlarging/reducing will be performed around the second origin and enlarged/reduced toward the sewing start point. (The second origin is not the point to be stopped.)



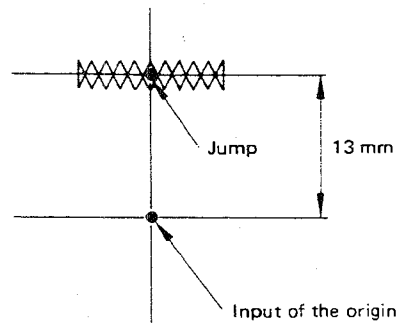
In this state, when enlarging/reducing a pattern where the second origin have not been set, the pattern will be enlarged/reduced from the sewing start point.

### 7. Inputting patterns

When you input a new pattern for the AMS-205C/AMS-206C, use the optional programming device PGM-2B, PGM-1 or PGM-5.

eg.) When programming a pattern for the AMS-205C feeding frame

- ① Set the origin.
- ② Jump 13 mm\* above the origin and input the point.  
(In case of the enlargement scale is 1 time.)  
\* (The amount of 13 mm should be set to 26 mm when the enlargement scale is 2 times.)
- ③ Input the pattern.



8. During operation, be careful not to allow your or another person's head or hands to come close to the handwheel, V belt, Bobbin winder or motor. Also, do not place anything near any of these parts while the machine is in operation. Doing so may be dangerous.
9. If your machine is equipped with a belt cover, finger guard, eye guard or any other protections, do not operate your machine with any of them removed.

# I. GENERAL

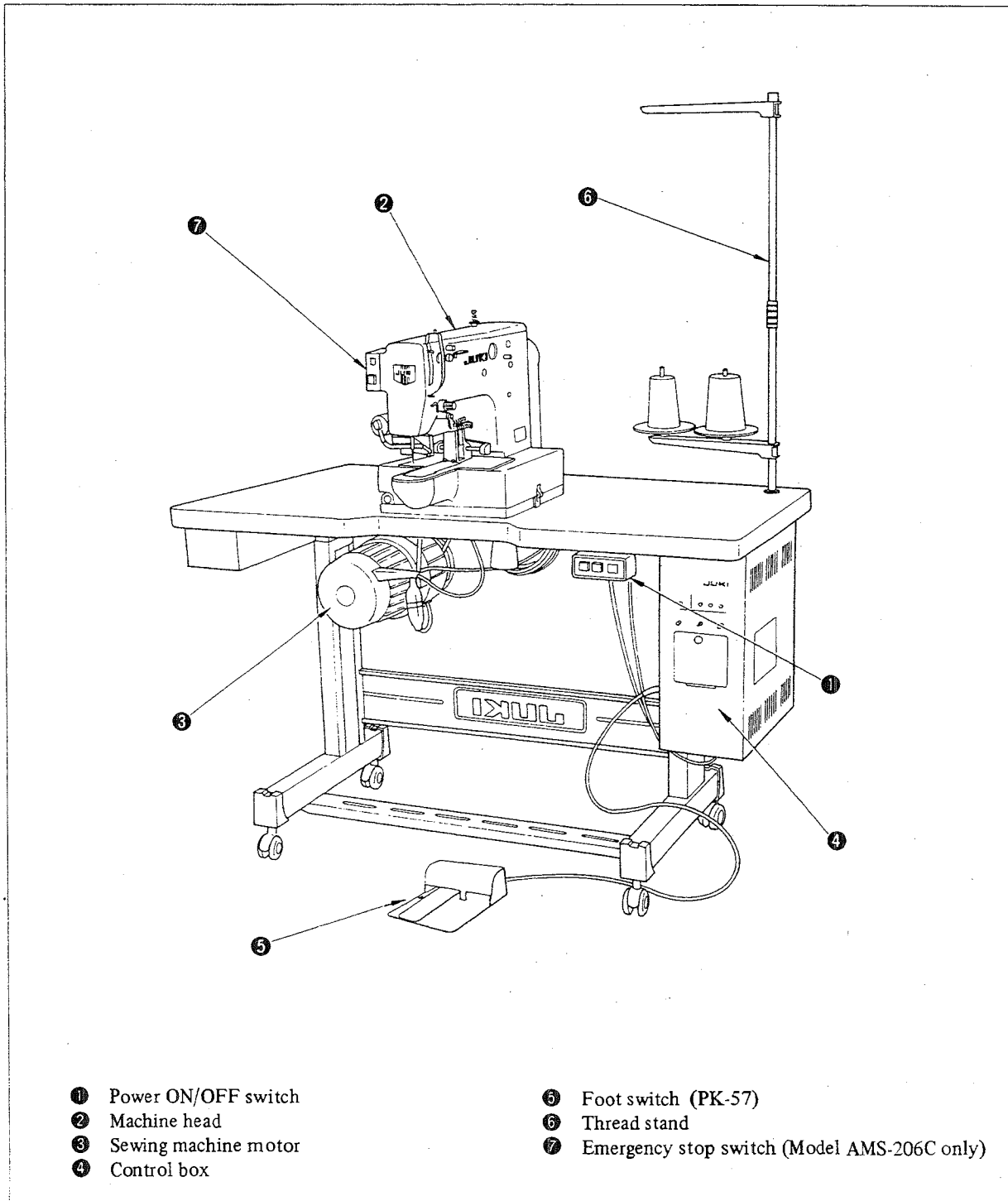
The AMS-205C and AMS-206C are electronic 1-needle cylinder bed lockstitch sewing machines. They are industrial automatic sewing machines designed mainly for bar-tacking and sewing on various small parts and joining fabrics.

The use of P-ROM for the memory enables the AMS-205C/206C not only to successfully perform complicated pattern stitching and embroidery, but also to program a number of sewing patterns into a P-ROM.

You can easily program patterns by using JUKI compact type programming device (PGM-1 + PGM-2B, PGM-5) which is available as an option.

## 1. Configuration

The following shows the main component units of the AMS-205C/206C.



## 2. Features

- 1) **High efficiency**  
By adopting a semi-rotary large hook, high efficiency in sewing operation is promised.
- 2) **Wider range of sewing area at reasonable price**  
This sewing machine has a wide sewing area ranging 50 mm x 40 mm and permits a small figure sewing.
- 3) **Lifting work clamp foot higher**  
The work clamp foot lift is as high as 17 mm (standard), which is enough for easy handling of workpiece and helpful for easy operation.
- 4) **Large capacity for data memories**  
Incorporation of 8k Byte P-ROM enables to memorize the maximum of 32 patterns and the maximum of 3,000 stitches per pattern. (Both an EEP-ROM or an EP-ROM can be used.)
- 5) **Flexible range of pattern scale**  
An original pattern can be enlarged or reduced from 1% to 255% of its original size in 1% unit. Additionally, it is selectable to enlarge or reduce the reference point of the origin or of a sewing start point.
- 6) **Capable of revolving patterns**  
A sewing pattern can be revolved by 90° or 180° around the origin as a reference point, and can be revolved by 90° around the sewing start point as a reference point. This function enables shift in the pattern direction, lengthwise and breadthwise.
- 7) **Capable of basting stitch**  
By incorporating an independent solenoid in thread tension releasing mechanism, basting stitch at 600 s.p.m. is easily performed.
- 8) **Wider sewing space**  
Realizing the wider sewing space of 166 mm x 66.8 mm permits easier handling of workpiece.
- 9) **Provided with a thread breakage detector as a standard device**  
A thread breakage detector is provided as a standard device. The thread breakage detector will be a great help to prevent production of inferior goods caused by a thread breakage.
- 10) **Provided with safety and testing facilities**  
Ten kinds of error messages indicate an operator about an incorrect operation of the machine. In addition, the machine incorporates a facility for testing inputs or outputs, sewing speed, and other functions. These facilities are helpful for a maintenance of the machine.
- 11) **Work clamp foot used for LK-980 are applicable.**  
Being compatible with LK-980, various kinds of work clamp foot for LK-980 are applicable without any adjustment.
- 12) **Various kinds of pattern inputs are possible.**  
Pattern input can be performed using the handy programming device (PGM-5) which is separately available, with ease and in a short period of time. Pattern input is also possible via PGM-1 or PGM-2B.
- 13) **Newly developed thinner pedal has been adopted.**  
The newly developed thinner pedal requires less pressure on it, thereby allowing the operator to operate the machine rhythmically.
- 14) **Sewing speed has been increased.**  
Thanks to the stepping motor with a higher torque, the sewing speed as high as 2,000 s.p.m. (when the stitch length is 3 mm or less) is possible.

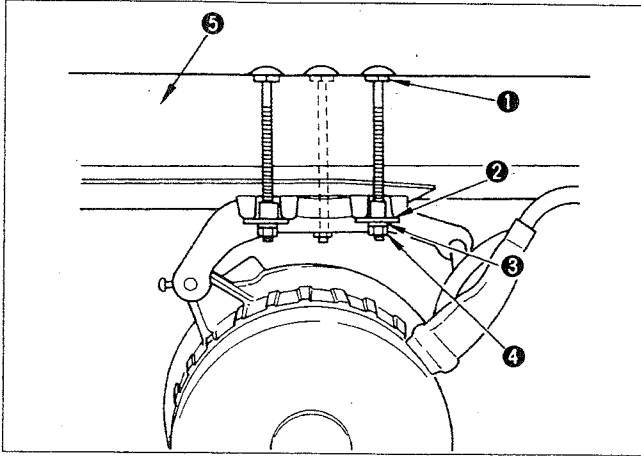
## 3. Specifications

- 1) Seam length: X (lateral) direction 50 mm  
Y (longitudinal) direction 40 mm
- 2) Max. sewing speed: 2,000 s.p.m.  
(for stitch length of 3mm or less)
- 3) Stitch length: Max. 6.2 mm (adjustable in 0.2 mm steps)
- 4) Feed motion of work clamp foot: Intermittent feed (2-shaft drive by stepping motor)
- 5) Needle bar stroke: 41.2 mm
- 6) Needle: DP x 5, DP x 17
- 7) Lift of feeding frame: AMS-205C: Standard 12 mm Max. 18 mm  
AMS-206C: Standard 17 mm Max. 18 mm
- 8) Intermediate presser stroke: 6 mm  
(AMS-206C)
- 9) Lift of intermediate presser: 9.5 mm  
(AMS-206C)



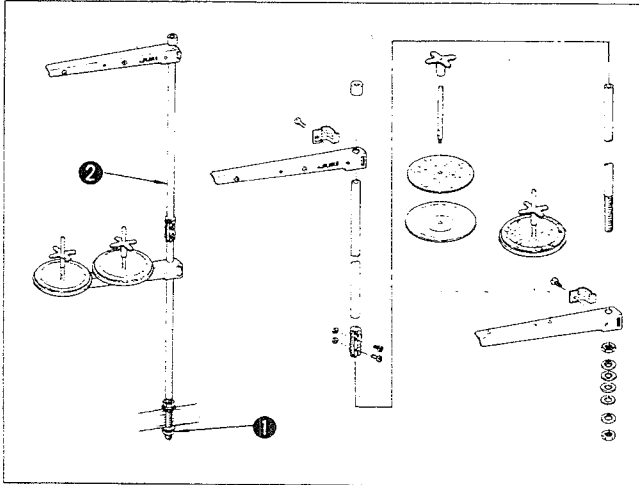
## II. INSTALLATION

### 1. Installing the motor



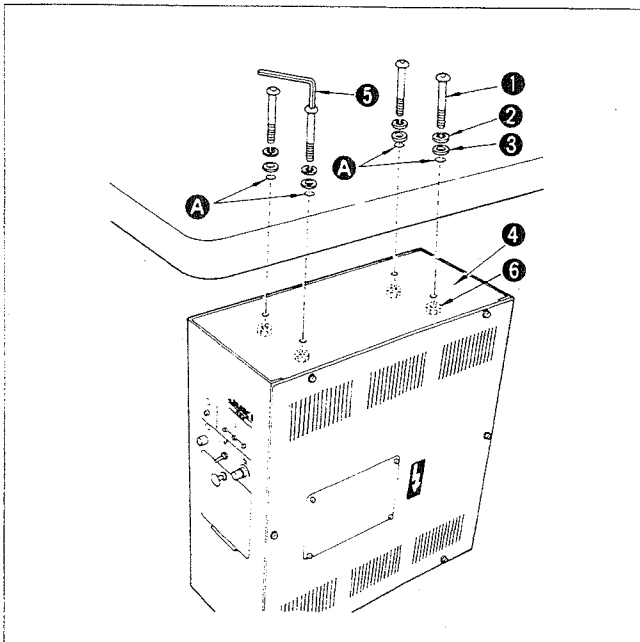
- 1) Attach the motor to the machine table ⑤, using bolt ①, flat washer ②, spring washer ③, and hexagon nut ④ as shown in the figure.
- 2) When tightening the locknut, be sure that the motor pulley V groove meets the hand-wheel V groove.

### 2. Installing the thread stand



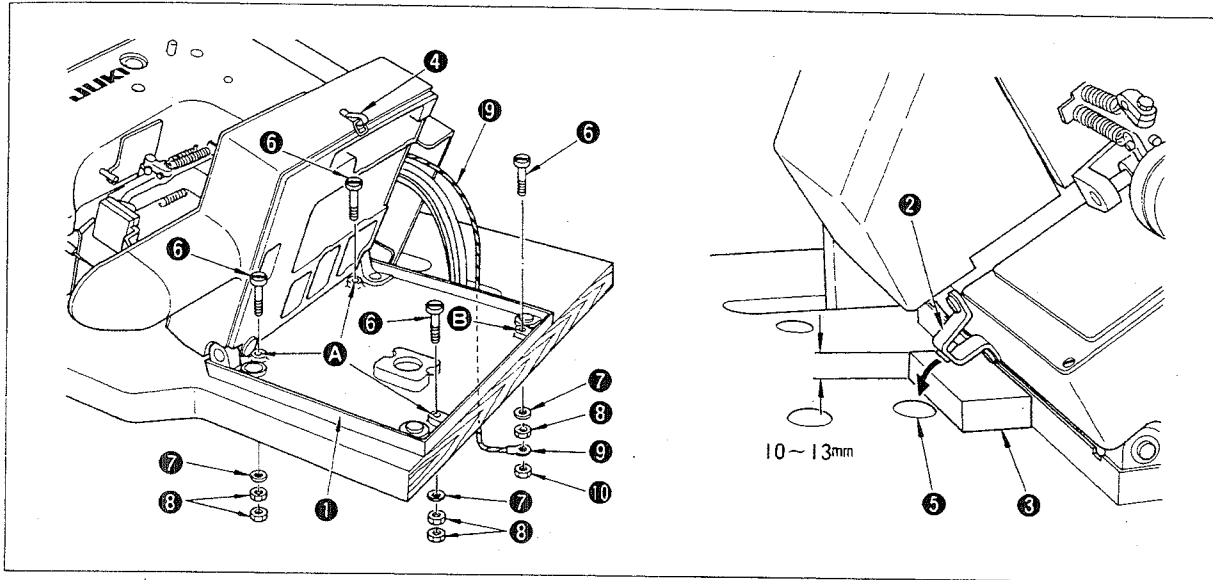
Assemble the thread stand, and put it in the hole in the top right corner of the machine table. Tighten locknut ① to fix the thread stand. When ceiling wiring is possible, pass the power cord through spool rest rod ②.


### 3. Installing the control box



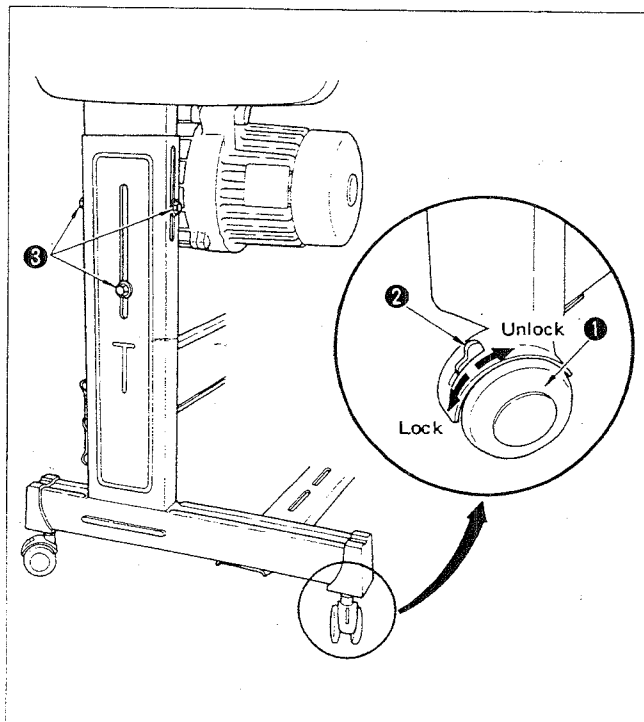
- 1) Attach bolts ①, spring washers ②, flat washers ③ to four holes A in the machine table.
- 2) Align four holes in the surface of control box ④ with bolts ①, and fix the bolts with hexagonal wrench (4 mm) ⑤ from the surface head of the bolts ①.
- 3) Fix the bolts from the inside of control box ④ with nuts ⑥.

#### 4. Installing the machine head



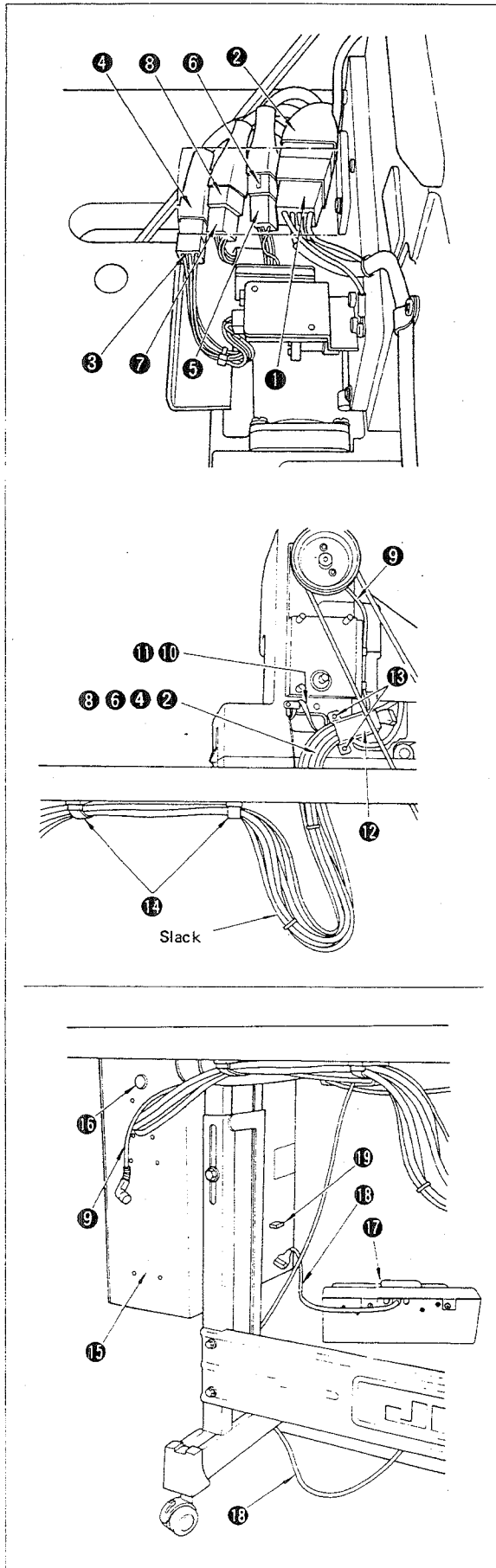
- 1) Align holes **A** and **B** in bed mounting base **1** with the four holes in the machine table, and fix the sewing machine on the machine table.
  - 2) Place "pad" **3** which is 10 mm to 13 mm thick under machine head supporter **2**.
  - 3) Release snap lock **4**, and tilt the machine head down, as illustrated. Make sure that machine head supporter **2** touches motor attaching bolt **5**.
- Note :** Take enough care to tilt the machine head, since the bed mounting base has not been fixed yet.
- 4) Insert bolts **6** supplied with the machine into the holes in the bed mounting base, then fix each bolt with a washer **7** and nuts **8** from under the machine table.
  - 5) Attach the end of the grounding cord **9** pulled out under the table to bolt **6** of point **B** (marked with ) with inserting nut **10**.

#### 5. Installing the machine stand



- 1) Install the machine stand on a flat place.
- 2) Move down lever **2** to lock castor **1**.
- 3) Use six bolts **3** to adjust the table height. Be sure to remove the machine head for safety before adjusting the table height.
- 4) Loosen the nuts to level the stand.

## 6. Connecting the cords



- ① Solenoid head side connector  
(15P large, Connector color : White)
- ② Solenoid relay cord side connector  
(15P large, Connector color : White)
- ③ Sensor head side connector  
(15P small, Connector color : White)
- ④ Sensor relay cord side connector  
(15P small, Connector color : White)
- ⑤ X-stepping motor head side connector  
(6P, Connector color : Blue)
- ⑥ X-stepping motor relay cord side connector  
(6P, Connector color : Blue)
- ⑦ Y-stepping motor head side connector  
(6P, Connector color : White)
- ⑧ Y-stepping motor relay cord side connector  
(6P, Connector color : White)

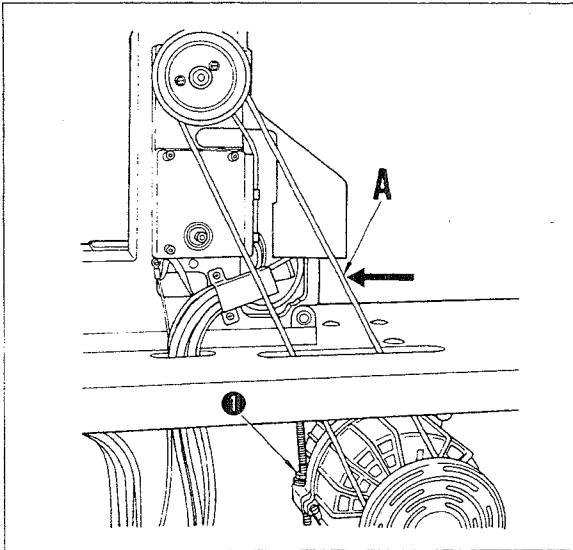
### ★ Head side

- 1) When connecting connectors ① with ②, and ③ with ④, check the size of the joining section of the connectors. And when connecting connectors ⑤ with ⑥, and ⑦ with ⑧, join the connectors in same color. Insert each connector until it will go no further.
- 2) Bind cords ②, ④, ⑥, ⑧, synchronizer cord ⑨, X-sensor cord ⑩, and intermediate presser magnet cord ⑪ together, put them into cord cover ⑫, and fix cord cover to bed with setscrews ⑬.  
Make sure that no cord is caught between the cord cover and the bed, when fixing the cord cover to the bed.
- 3) Slacken the cords which has been bound, and pass them through two cable clips ⑭.

### ★ Control box side

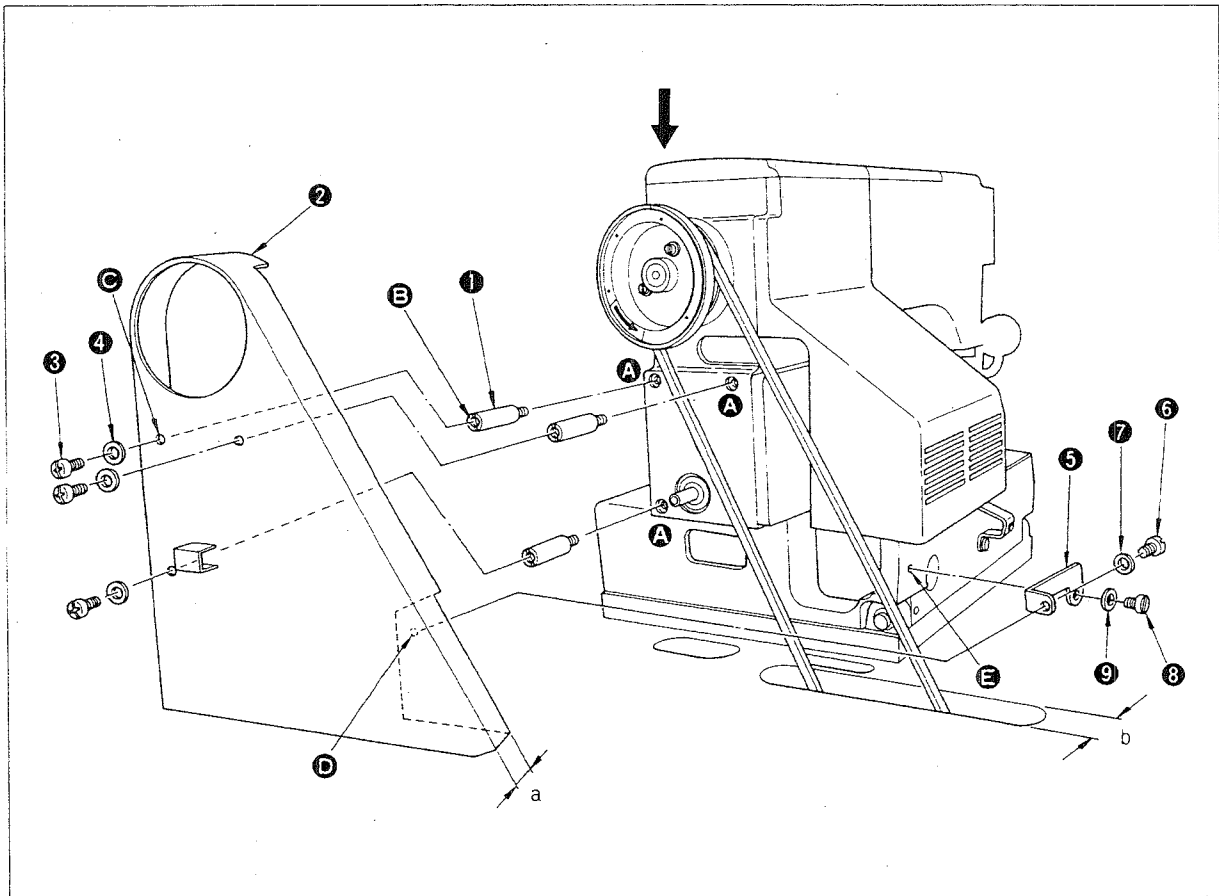
- 4) Insert synchronizer cord ⑨ into connector ⑮ on control box ⑯.
- 5) Insert cord ⑰ of foot switch ⑱ into connector ⑲.

## 7. Adjusting the belt tension



Adjust nut ① so that the belt slacks about 10 mm when about 1 kg pushing force is applied to part A.  
**(Caution)** Remove the intermediate presser before installing or removing the belt.

## 8. Installing the belt cover



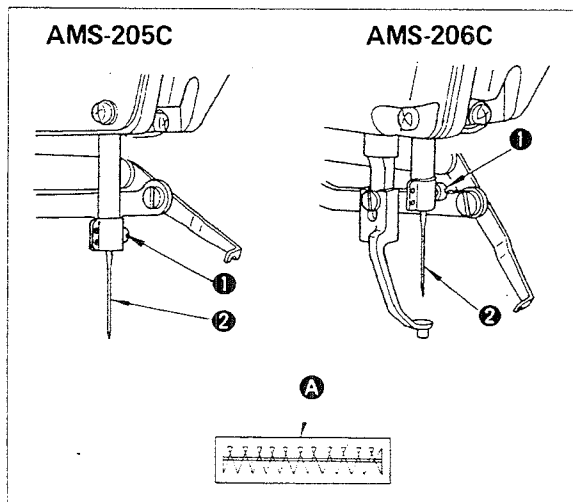
- 1) Attach three screws ① supplied with the machine, to fixing holes ① on the arm.
  - 2) Install belt cover ② from the direction of the arrow ↓.
  - 3) Align each of three holes ③ in screws ① and each of three holes ④ in belt cover ②, and fix them with setscrews ⑤ and washers ⑥.
  - 4) Align board ⑦ furnished with the machine with hole ⑧ in belt cover ② and hole ⑨ in bed, and fix them with setscrew ⑩ and ⑪, and with washer ⑫ and ⑬.  
 Make sure that the width a of the belt cover adequately fits the width b of the long hole in the machine table.
- \* Length of setscrews ⑤, ⑩, ⑪ : ⑤, ⑩, ⑪ in descending scale of length.  
 All of the washers are the same type.

### III. OPERATION

#### 1. Selecting a suitable needle for material

Material	Needle	Needle hole guide	Class of work
Ultralight-weight	# 11 DP x 5 (DP x 17)	B2426 210 00C	Knit, tricot
Synthetic	# 14 DP x 5 (DP x 17)	B2426 210 00A	Men's suits, ladies' wear
Medium-weight	# 16 DP x 5 (DP x 17)	B2426 210 00B	Men's suits, ladies' wear, chemical shoes
Heavy-weight	# 18 DP x 5 (DP x 17)	B2426 210 00D	Working wear, coats, bags

#### 2. Attaching a needle

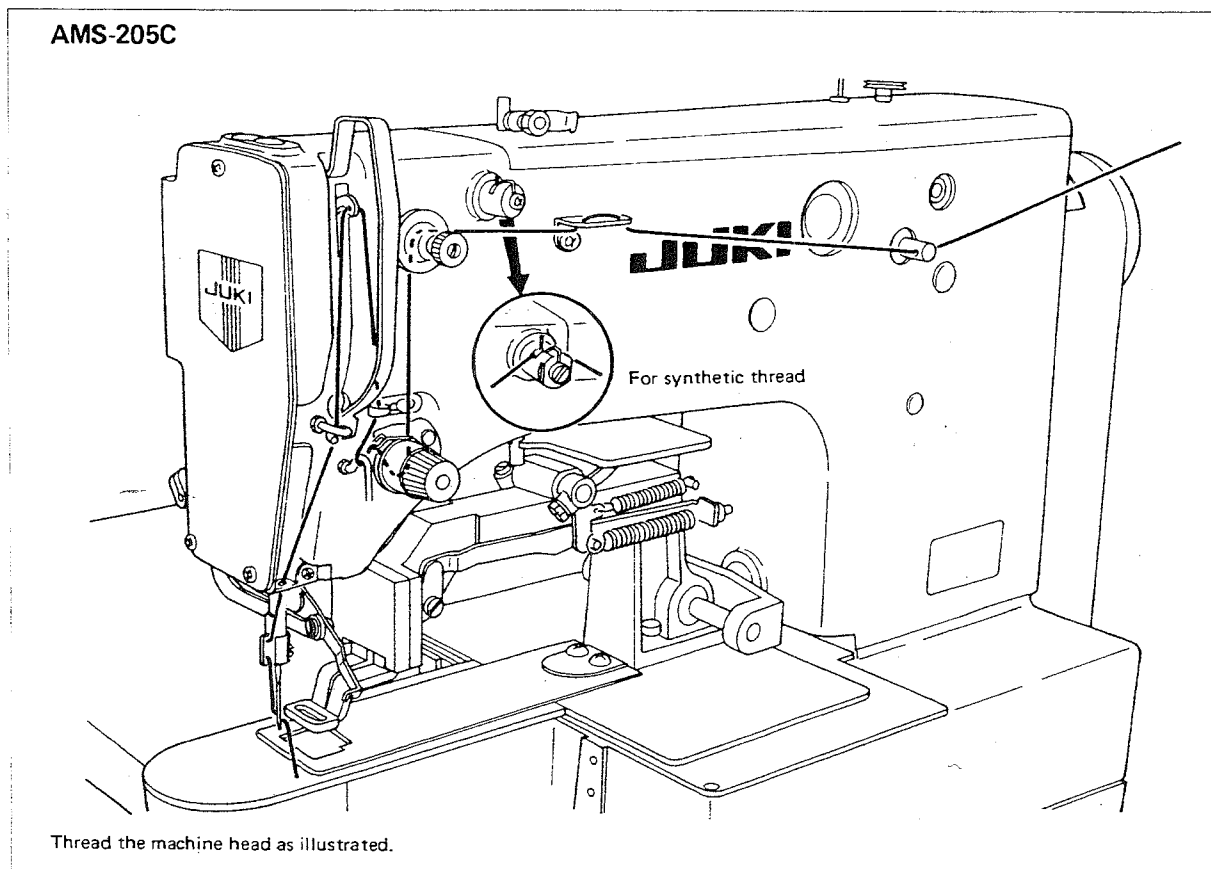


Loosen setscrew ①. Hold needle ② with its long groove facing toward you, and insert the needle fully into the hole in the needle bar. Tighten setscrew ①.

(Notes)

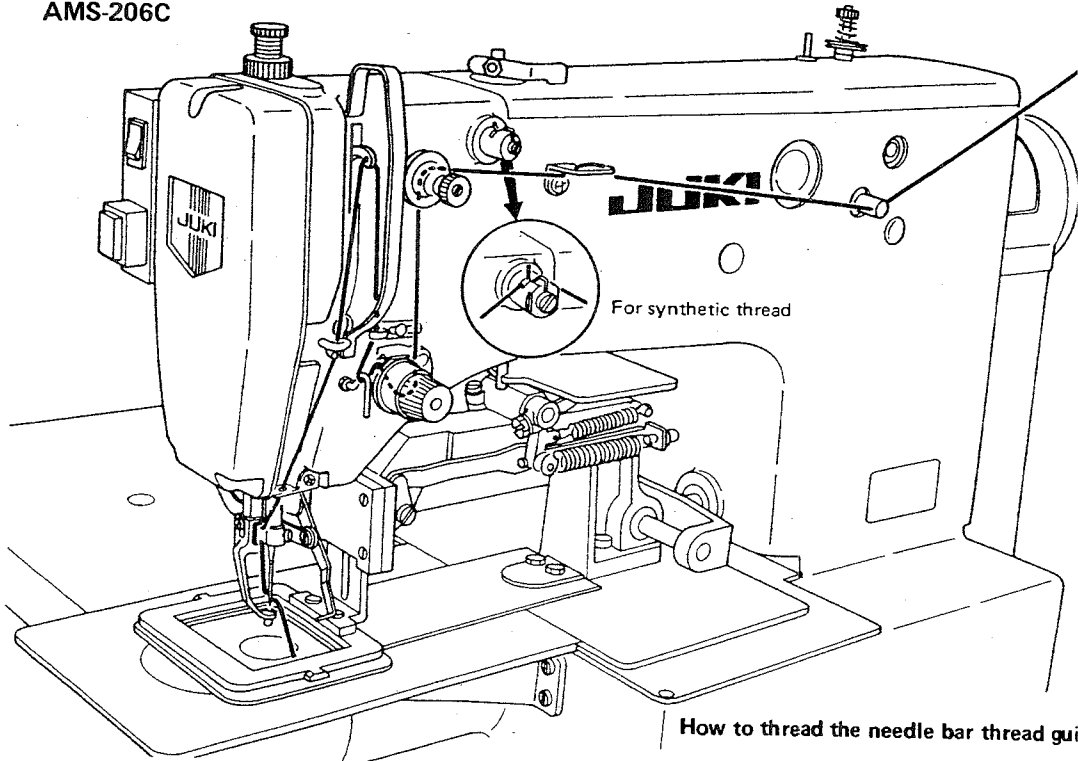
1. In case the needle thread stitches are made as shown by A, attach the needle so that the long groove of the needle is slightly turned to the left.
2. When sewing heavy-weight materials with synthetic fiber thread, use a super needle exclusive for synthetic fiber.
3. Be sure to attach the needle after the power switch has been turned OFF.

#### 3. Threading the machine head

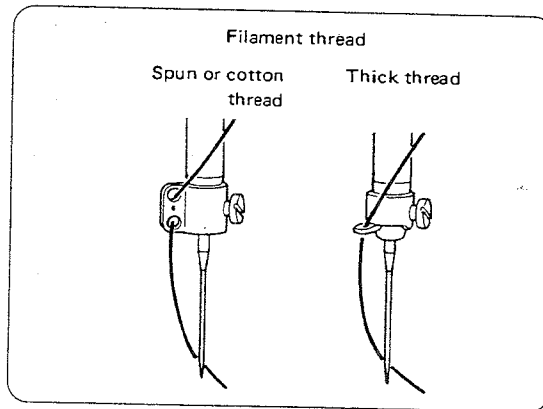


Thread the machine head as illustrated.

AMS-206C

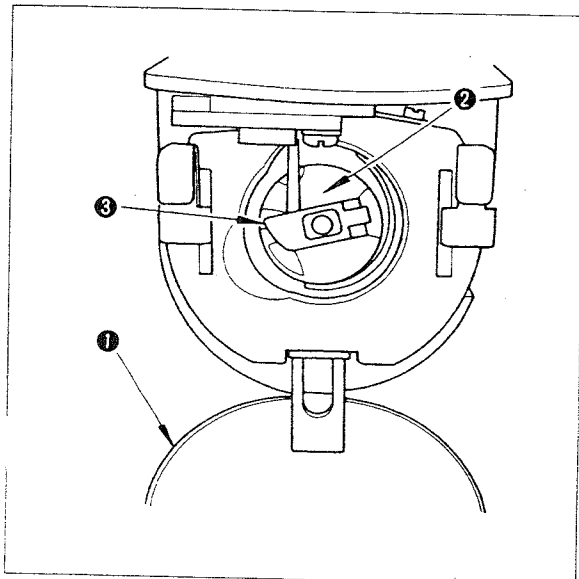


How to thread the needle bar thread guide



Thread the machine head as illustrated.

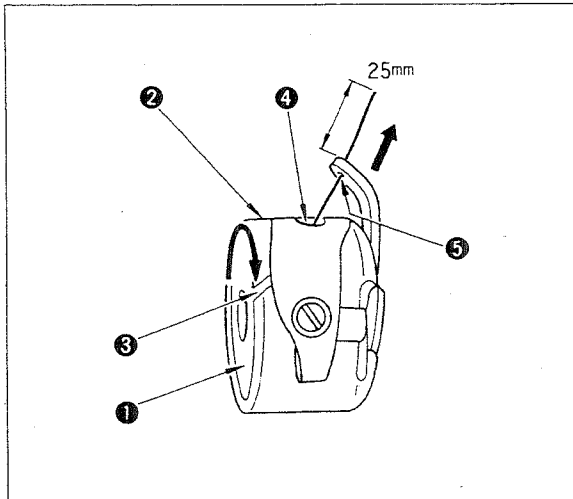
#### 4. Installing and removing the bobbin case



- 1) Open cylinder arm cap ① .
- 2) Raise and hold latch lever ③ of bobbin case ② to take it out. The bobbin in the bobbin case does not come off as long as the latch lever is raised and held.
- 3) To load the bobbin case into the shuttle, be sure to hold the latch lever ③, and fit it onto the shuttle shaft, and snap in the latch lever of the bobbin case.

(Note) In case the bobbin case is not fully thrust in the hook, the bobbin case ② might drop out of the shuttle during the sewing operation. Be sure to load the bobbin case securely.

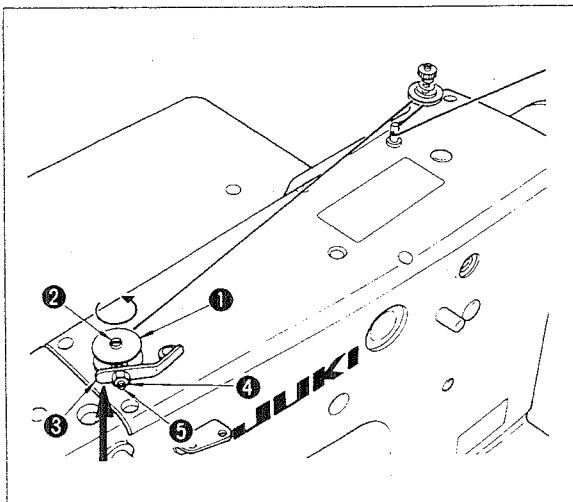
## 5. Installing the bobbin in the bobbin case



- 1) Hold bobbin ① in hand so that it spins clockwise, and set it in bobbin case ②.
- 2) Pass the thread through slot ③ in the bobbin case. Pull the thread to pass it under the tension spring out to thread exit ④. At this time, make sure that the bobbin turns in the direction of the arrow when the thread is pulled.
- 3) Pass the thread through hole ⑤ in the latch, and pull the thread out about 25 mm from the hole.

**(Caution)** When the bobbin is set inversely in the bobbin case, the thread tension might be unstable affected by the idle spring. So please be careful when you set the bobbin in the bobbin case.

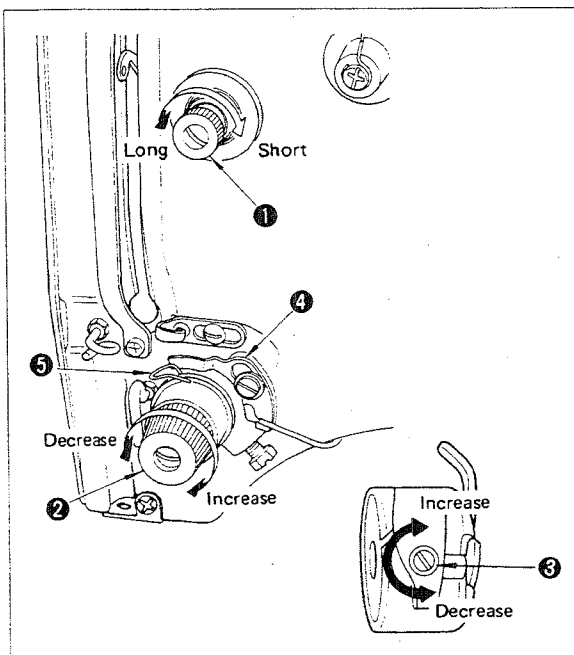
## 6. Winding a bobbin



- 1) Attach bobbin ① to bobbin winder spindle ②.
- 2) Thread the winder in the order as illustrated and wind the thread onto the bobbin four or five turns.
- 3) Push bobbin winder trip latch ③ in the direction of the arrow, and the winder starts to wind the bobbin.
- 4) To adjust the amount of thread wound round the bobbin, loosen nut ④ and screw in adjusting screw ⑤ to decrease the thread amount.

**(Caution)** Be sure to use genuine JUKI bobbin cases and bobbins.

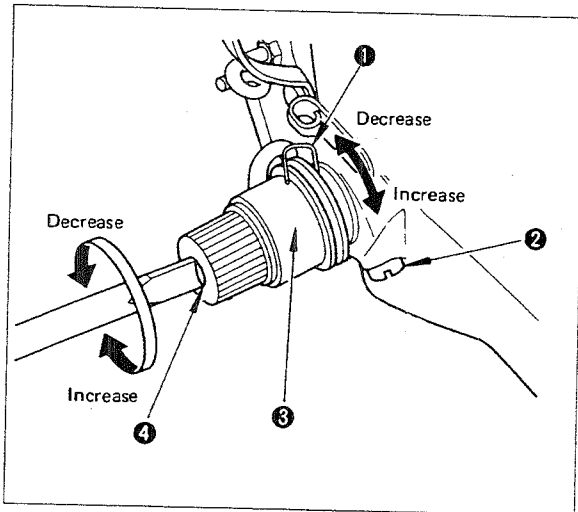
## 7. Thread tension



- 1) Adjusting the needle thread tension  
Turn thread tension controller No. 1 ① clockwise to decrease the length of the thread which will remain on the needle after thread trimming, or counterclockwise to increase it. Minimizing the length of the thread which will remain on the needle as long as the thread does not slip off the needle.  
Turn thread tension controller No. 2 ② clockwise to increase the needle thread tension, or counterclockwise to decrease it.
- 2) Adjusting the bobbin thread tension  
Turn thread tension adjusting screw ③ clockwise to increase the bobbin thread tension, or counterclockwise to decrease it.

**(Caution)** Be sure that thread take-up spring ⑤ is in contact with thread breakage detector ④ in the absence of the needle thread. Also, be sure that the thread breakage detector does not touch any adjacent metallic components other than the thread take-up spring.

## 8. Adjusting the thread take-up spring



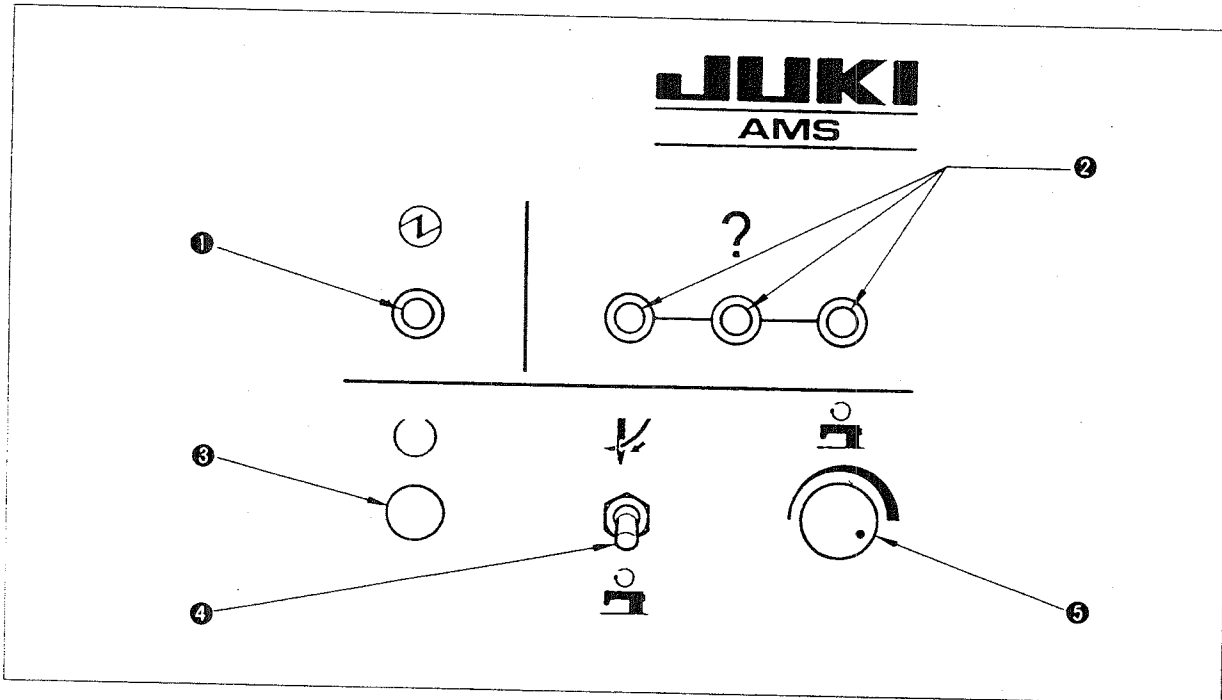
The normal stroke of thread take-up spring ① is 6 to 8 mm, and the tension at the starting point is 20 to 40 g.

- 1) Adjusting the stroke  
Loosen screw ②, and turn tension controller assembly ③ clockwise to increase the stroke or counterclockwise to decrease it.
- 2) Adjusting the tension  
Insert the blade of a flat-bit screwdriver into the groove in the tension post ④, and turn it clockwise to increase the tension or counterclockwise to decrease it.










(Note) Decrease the tension of the thread take-up spring for a synthetic fiber thread. (about 15 g)

## 9. Control box

### 1) Operation panel

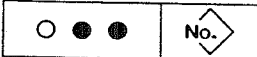
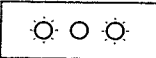

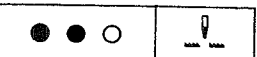
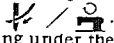
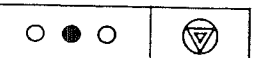
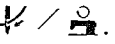


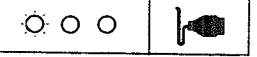
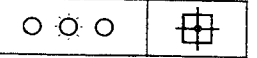
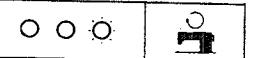
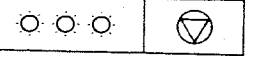


Panel indication	Function and operation
	<p>① <b>Power indicator lamp LED (Green)</b> Pilot lamp indicating ON/OFF of the power switch. Lights when the power switch is turned ON.</p>
	<p>② <b>Error LED (Red)</b> These three LED indicate incorrect operation, incorrect pattern setting, and disorder of the machine unit. See Page 13 "Error indications" for details. When sewing operation is performed in good order, the three LED lamps do not light.</p>

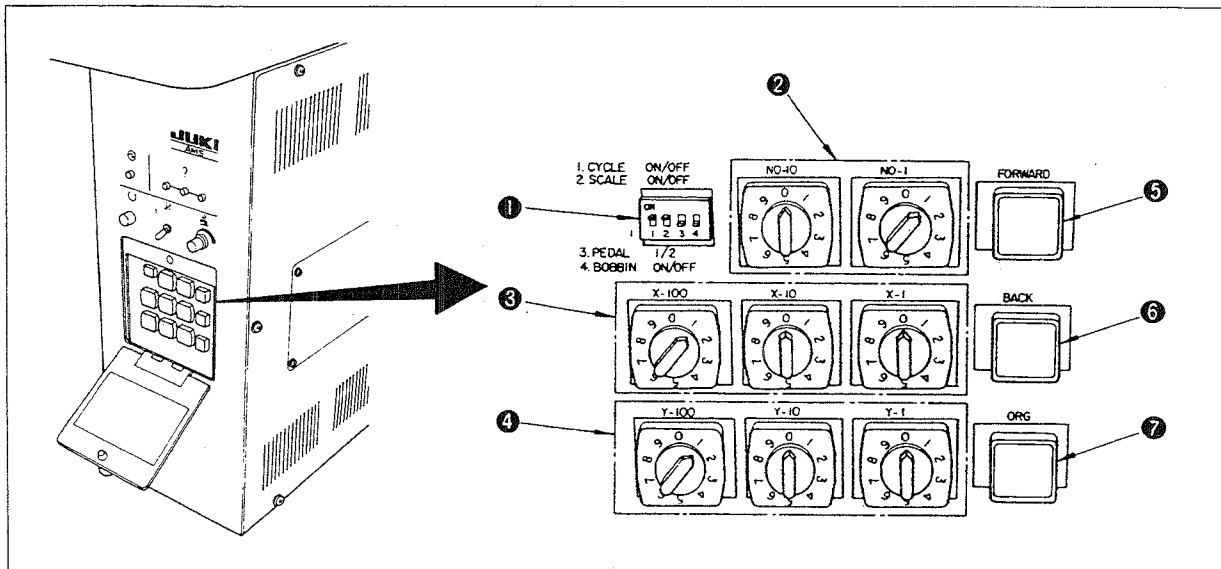
Panel indication	Function and operation
	<p><b>③ Set Ready switch</b></p> <p>Enables the machine to perform sewing work by reading pattern numbers and other conditions which have been set for sewing.</p> <p>Be sure to press the Set ready switch when turning the power switch ON, or after having set the pattern numbers for operation and enlarging/reducing scale of the original pattern size on X-Y axis. By pressing this switch, the following procedures will be performed.</p> <ol style="list-style-type: none"> <li>1. Check whether data P-ROM stores the data of selected pattern No.</li> <li>2. Check whether the stitch length exceeds maximum of 6.2 mm through arithmetical operation using enlarging/reducing scale on X-Y axis.</li> <li>3. The feeding frame comes down from a desired position, refers the origin, moves to the sewing start point, then lift up.</li> <li>4. Put out all the lamps of Error LED, and permit the machine to perform the sewing operation.</li> </ol> <p>(Notes) ① Be sure not to put your fingers under the feeding frame, for the feeding frame comes down automatically after completing 1. and 2. procedures mentioned above.</p> <p>② In case there is no change of pattern No. or enlarging/reducing scale on X-Y axis when turning the power switch ON, the patterns which have been set for the previous sewing operation will be performable by turning the Set ready switch ON.</p> <p>③ If there is something wrong with the procedures 1., 2. and 3., Error LED will light up and the following jobs shall be interrupted.</p> <p>See "Error indications" for the release from the error.</p> <p>④ In case the foot switch is treadled without turning the Set ready switch ON, in spite that the set data for operation has been changed after turning the power switch ON or during sewing, three lamps of Error LED will light up to indicate to turn the Set ready switch ON.</p>
	<p><b>④ Needle threading switch (Intermediate presser lowering switch)</b></p> <ol style="list-style-type: none"> <li>1. Intermediate presser lowering mechanism When sewing operation is performable, the feeding frame and intermediate presser comes down to make needle threading work easier by pressing the switch . Then pressing the switch  lifts up the feeding frame and intermediate presser to make sewing operation performable.</li> <li>2. Thread trimming mechanism In case the operation is forced to be stopped with Emergency stop switch, thread trimming control function will not be effective. By pressing these switches  / , thread trimming will be performed and make the switches of Forwarding, Backwarding, Return to origin, effective.</li> <li>3. Upper position reset mechanism In case that the intermediate presser is moved from its standard upper position after the Set ready switch has been turned ON and all the lamps of Error LED has been turned OFF, pressing the switches  /  returns the intermediate presser to its standard upper position.</li> </ol>
	<p><b>⑤ Max. sewing speed limiting knob</b></p> <p>Sewing speed is automatically limited in accordance with the input data of stitch length or sewing patterns. In case that lower sewing speed is required, turn the knob counterclockwise.</p>

★ Error indications

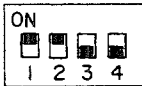
●..... light OFF      ○..... light ON      ◉..... Flicker

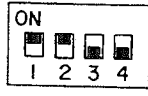
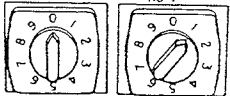
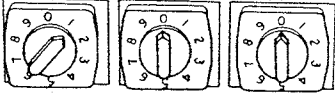
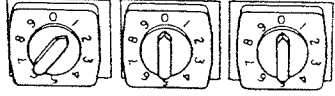
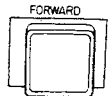
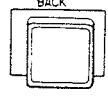
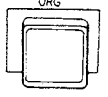
No.	Error indication	Description of error	How to reset
1	 <p>Pattern No. error</p>	<p>Appears when P-ROM have not stored the data for the pattern No. which is selected to be set.</p> <p>Appears when some trouble has resulted in a read error.</p>	<p>Set a correct pattern. No.</p> <p>Check P-ROM of MAIN circuit board in electric box. (Check whether direction of pin is right, or set securely.)</p>
2	 <p>Pattern data error</p>	<p>Appears when the data P-ROM comes of the receptacle or it is improperly connected to the receptacle during sewing.</p>	<p>Turn OFF the power switch. Then connect the data P-ROM to the receptacle in the correct manner.</p>
3	 <p>Enlargement error</p>	<p>Appears when the stitch length exceeds 6.2 mm or when enlargement scale exceeds 255 times.</p>	<p>Correctly reset the enlarging scale on X and/or Y axis.</p>
4	 <p>Needle up error</p>	<p>Appears when the needle is not in its highest position.</p>	<ol style="list-style-type: none"> <li>1. Turn the handwheel until the error indication disappears.</li> <li>2. When sewing operation is performable, the machine will rotate automatically until the needle stops in its highest position by pressing the needle threading switch .</li> </ol> <p>(Be sure not to place anything under the needle because the machine rotate automatically.)</p>
5	 <p>Emergency stop error (Emergency stop switch is supplied with AMS-206B as a standard equipment.)</p>	<p>Appears when the emergency switch is turned ON.</p>	<ol style="list-style-type: none"> <li>1. Turn the start switch ON again.</li> <li>2. Press the needle threading switch .</li> </ol>
6	 <p>Thread breakage error</p>	<p>Appears when the needle thread has broken.</p>	<p>Re-thread the machine head, press Return to origin switch and Forward or Backward switch before pressing the start switch.</p>
7	 <p>Sewing area error</p>	<p>Appears when the maximum sewing area 50 mm x 40 mm, during sewing operation or confirming job.</p>	<p>Releases by pressing Return to origin switch.</p>
8	 <p>Solenoid connector error</p>	<p>Appears when some poor connection of a solenoid connector has been detected.</p>	<p>Turn the power switch OFF, and check for loose solenoid connectors.</p>
9	 <p>Referring origin error</p>	<p>Appears when the origin cannot be referred after the Set ready has been turned ON.</p>	<p>Check the X and/or Y sensors. (check input and output of the sensors) Check the connectors of X and/or Y stepping motor and the stepping motor.</p>
10	 <p>Reverse rotation error</p>	<p>Appears when the machine rotate to the reverse direction, or some trouble has been detected in the synchronizer.</p>	<p>Change the motor rotating direction. Check the synchronizer.</p>
11	 <p>Machine lock synchronizer error</p>	<p>Appears when the sewing machine will not rotate, or some trouble has been detected in the synchronizer.</p>	<p>Turn the power switch OFF. Check the parts for those out of order, to replace with good ones. Check for the trouble causing the machine locked, and remove it. Then turn the power switch ON.</p>

## 2) Operation panel switches and functions

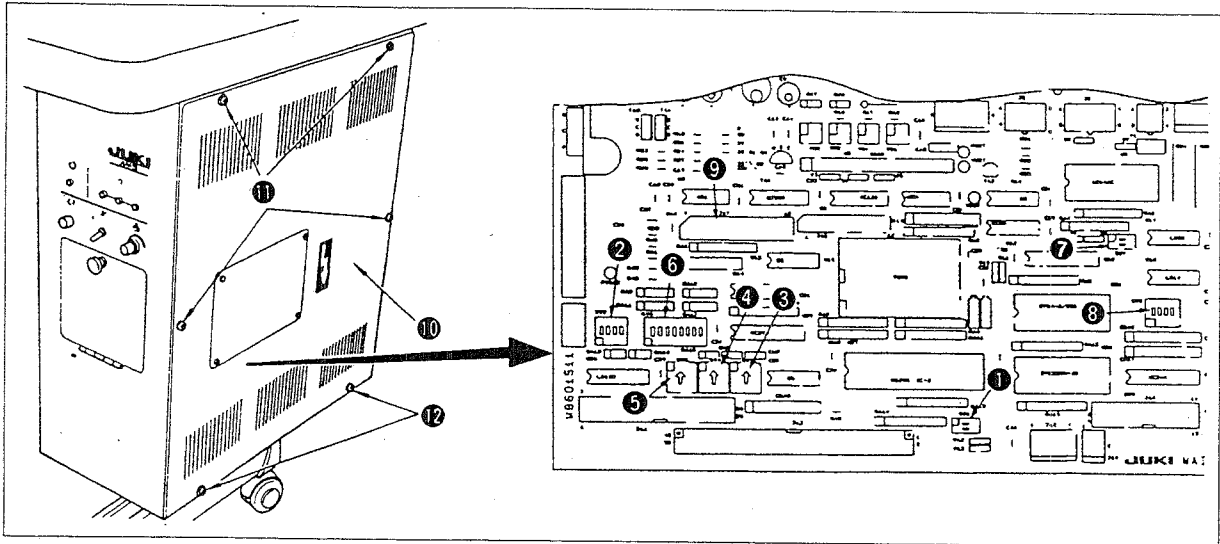


Open the lid of the control box, there are switches ① ~ ⑦ on the operation panel. The functions of the switches are as follows:

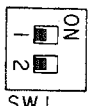
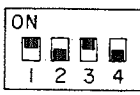
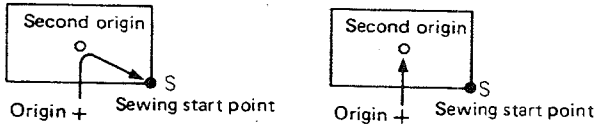
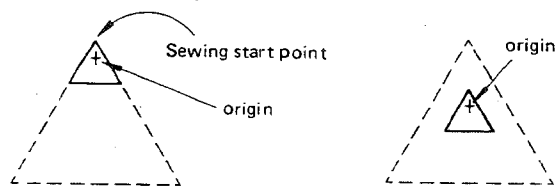
Name of switch	Function
<p>① <b>DIP switches</b></p> <p>1. CYCLE ON/OFF 2. SCALE ON/OFF</p> <div style="text-align: center;">  </div> <p>3. PEDAL 1/2 4. BOBBIN ON/OFF</p>	<p>● <b>Cycle sewing ON/OFF switch</b> Selects either lifting the feeding frame or keeping it lowered upon an order of pause in a pattern data. ON ..... Feeding frame goes up when a pattern sewing operation is temporarily stopped. (Factory-set) This function permits a replacement of workpieces. It will lead to higher productivity. The sewing operation re-starts by pressing the presser start switch. OFF ... Feeding frame stays lowered when a pattern sewing operation is temporarily stopped.</p>
	<p>● <b>Scale ON/OFF switch</b> Selects whether scale setting switch is effective, or ineffective. ON ..... Scale setting is ineffective. If you try to set scale for a pattern, the pattern remains its original size. (Factory-set) OFF ... Scale setting is effective on X and/or Y axis.</p>
	<p>● <b>Pedal selector switch</b> To be selected depending on the type of foot switches. ON ..... In case of using optional pedal switch set A (M85905100A0), select ON side of this switch. Work clamp foot will stay lowered, when you release the pedal. (Two-pedal method) OFF ... In case of using standard foot switch. (Factory-set) One treadle on the pedal lowers the work clamp foot. Another treadle on the pedal actuates the machine.</p>

Name of switch	Function
<p>① <b>DIP switches</b></p> <p>1. CYCLE ON/OFF 2. SCALE ON/OFF</p>  <p>3. PEDAL 1/2 4. BOBBIN ON/OFF</p>	<p>4</p> <ul style="list-style-type: none"> <li>● <b>Bobbin thread winder ON/OFF SWITCH</b> Selects either normal sewing operation or bobbin thread winding. ON ..... Bobbin winding. When this switch is set to "ON" while the sewing machine is not engaged, the feeding frame and the intermediate presser will automatically come down. Then the sewing machine starts running at a constant speed to wind the bobbin when the start switch is depressed. To stop the bobbin winding, depress the start switch again, or set the bobbin winder switch to "OFF", or press the emergency stop switch "ON". (Note) Prior to bobbin winding, make sure that there is nothing under the needle. OFF ... Normal sewing operation. (Factory-adjusted)</li> </ul>
<p>② <b>Pattern No. setting Switch</b></p> 	<p>Selects a pattern or patterns which have been stored in the P-ROM.</p>
<p>③ <b>X Scale setting switch</b></p>  <p>④ <b>Y Scale setting switch</b></p> 	<p>Taking a pattern written in the P-ROM as 100%, the original pattern can be enlarged or reduced in the X-axis and/or Y-axis independently within a range of 1% ~ 255%.</p> <p>Two kinds of references; one is the origin, another is sewing start point, which are to be selected by the DIP switches on the MAIN printed circuit board in the control box.</p> <p>(Notes) 1. Whenever a pattern has been enlarged/reduced, make sure that the needle will not hit the work clamp foot by checking the motion of the needle with FORWARD/BACKWARD switch. 2. With the Scale switch set to "Increase/decrease of stitch length", pattern enlargement cannot be done if the stitch length exceeds 6.2 mm. Maximum limit for enlarging scale is 255 %.</p>
<p>⑤ <b>FORWARD switch</b></p>  <p>⑥ <b>BACKWARD switch</b></p> 	<p>When the FORWARD switch is pressed with the feeding frame down, the material is fed forward by one stitch. When the BACKWARD switch is pressed with the feeding frame down, the material is fed backward by one stitch.</p> <p>If these switches are kept depressed, the material is fed slowly for the first one stitch, after which it is automatically fed quickly.</p> <ul style="list-style-type: none"> <li>● Check the operation</li> </ul> <p>Make sure that needle does not hit work clamp foot, after settings of switches on the operation panel (Pattern No. X and/or Y scale) have been changed.</p>
<p>⑦ <b>Return to origin</b></p> 	<p>When this switch is pressed during checking the motions of the machine in action, or when the needle thread is broken, the feeding frame will automatically move to the sewing start point and then it will go up and stop.</p>

## 10. DIP switches on the printed circuit board



Remove four setscrews ⑪ and loosen two screws ⑫ in cover ⑩ of the control box. Remove cover ⑩ of the control box, then you will see DIP switches ① through ⑧ on the MAIN circuit board. Now, the functions of those switches are described as follows:

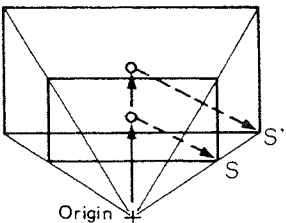
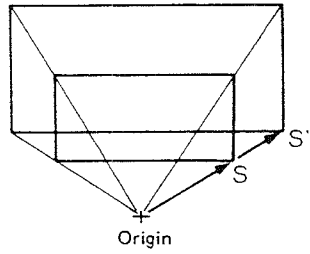
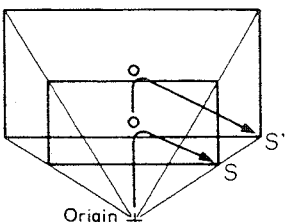
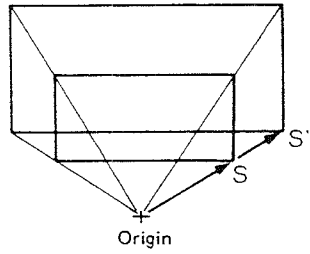
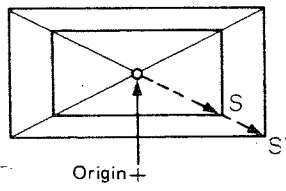
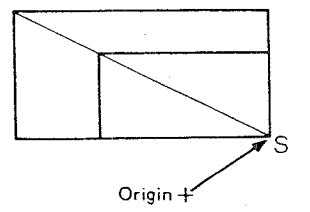
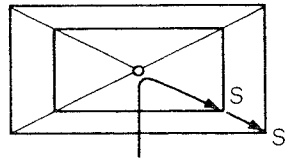
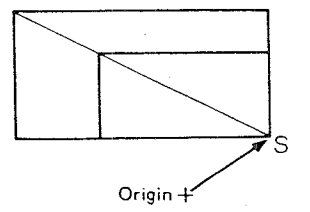
Switch name	Function
<b>① DIP switch 1 (SW1)</b>  SW1	<ul style="list-style-type: none"> <li>● <b>SW1-1</b> Thread breakage detector ON/OFF                ON ..... The thread breakage detector does not work.                OFF ..... The thread breakage detector works. (Factory-set)</li> <li>● <b>SW1-2</b> Not used.</li> </ul>
<b>② DIP switch 2 (SW2)</b>  SW2	<ul style="list-style-type: none"> <li>● <b>SW2-1</b> Changes start point                ON : Move to sewing start point (Factory-set)                OFF : Move to the second origin   </li> <li>● <b>SW2-2</b> Actuates/stops the intermediate presser (AMS-206C)                ON ..... The intermediate presser stops                OFF ..... The intermediate presser actuates. (Factory-set)                * AMS-205C ... Turning the SW2-2 ON shortens cycle time.</li> <li>● <b>SW2-3</b> Enlarging/reducing the standard sewing start point and the standard origin.                ON (Factory-set)                OFF   </li> <li>● <b>SW2-4</b> Actuates/stops the wiper                ON ..... The wiper stops                OFF ..... The wiper actuates (Factory-set)</li> </ul>

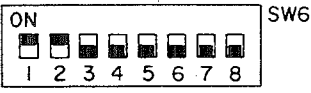
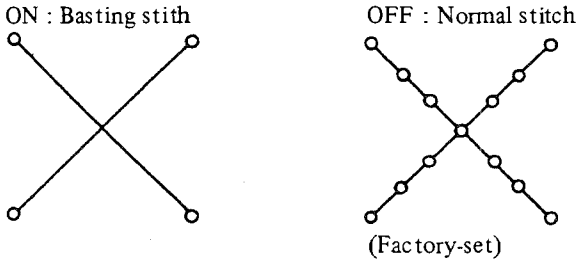
★ **Kinds of enlargement and reduction**

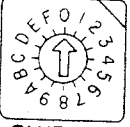
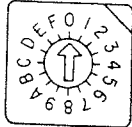
The following enlargement and/or reduction can be performed by combining the functions of DIP switches SW2-1 and SW2-3, or by setting or not setting, the second origin at the time of data input.

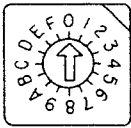
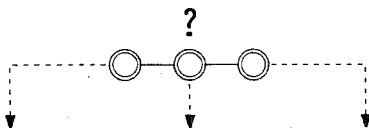
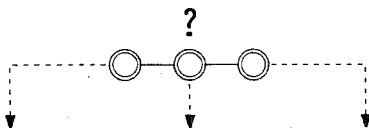
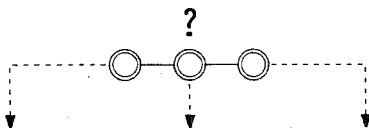
(Input data with optional programming devices, PGM-2B, PGM-1 or PGM-5, which you may purchase separately.)

- \* 1. The figure below illustrates a standard pattern and an enlarged pattern.
- 2. Sewing start point S is indicated as S' after the enlargement.
- 3. When enlarging/reducing a pattern using the origin as a reference point, the second origin changes its position.
- 4. When enlarging/reducing a pattern using a sewing start point as a reference point, the second origin keeps its position.

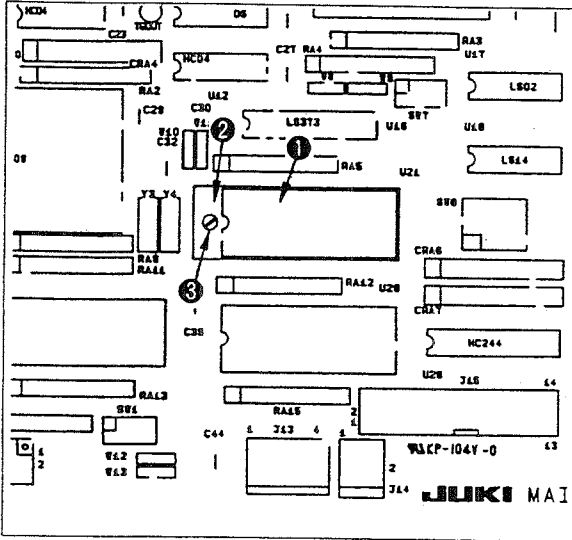
SW2-1	Pattern with 2nd origin	Pattern without 2nd origin	SW2-3
OFF	<p>Reference point for enlarging/reducing is the origin</p> <p>Stops at the 2nd origin, starts from the 2nd origin, and completes at the 2nd origin.</p> 	<p>Reference point for enlarging/reducing is the origin</p> 	OFF
ON	<p>Reference point for enlarging/reducing is sewing start point</p> <p>Stops at sewing start point, starts from the sewing start point, and completes at the sewing start point.</p> 	<p>Reference point for enlarging/reducing is the origin</p> 	OFF
OFF	<p>Reference point for enlarging/reducing is the 2nd origin</p> <p>Stops at the 2nd origin, starts from the 2nd origin, and completes at the 2nd origin.</p> 	<p>Reference point for enlarging/reducing is sewing start point</p> 	ON
ON	<p>Reference point for enlarging/reducing is the 2nd origin</p> <p>Stops at a sewing start point, starts from the sewing start point, and completes at the sewing start point.</p> 	<p>Reference point for enlarging/reducing is sewing start point</p> 	ON

Switch	Function															
<p><b>⑥ DIP switch 6 (SW6)</b></p> 	<ul style="list-style-type: none"> <li>• <b>SW6-1, 2</b> Selects cloth feed timing.</li> </ul> <table border="1" data-bbox="683 268 1435 491"> <thead> <tr> <th>6-1</th> <th>6-2</th> <th>Material thickness</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>ON</td> <td>Below 2 mm (Factory-set)</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>2 mm or more but below 3 mm</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>3 mm or more but below 4 mm</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>4 mm or more</td> </tr> </tbody> </table> <ul style="list-style-type: none"> <li>• <b>SW6-7</b> Switch over of the disc floating mechanism. The needle enters into a material only at inflection points. (This function enables to make stitches of which length is more than 6.2 mm.)</li> </ul> <p>ON : Basting stith      OFF : Normal stitch</p> 	6-1	6-2	Material thickness	ON	ON	Below 2 mm (Factory-set)	OFF	ON	2 mm or more but below 3 mm	ON	OFF	3 mm or more but below 4 mm	OFF	OFF	4 mm or more
6-1	6-2	Material thickness														
ON	ON	Below 2 mm (Factory-set)														
OFF	ON	2 mm or more but below 3 mm														
ON	OFF	3 mm or more but below 4 mm														
OFF	OFF	4 mm or more														
	<ul style="list-style-type: none"> <li>• <b>SW6-5, 6</b> Selects direction of a pattern, lengthwise and crosswise</li> </ul> <table border="1" data-bbox="683 989 1435 1514"> <thead> <tr> <th>6-5</th> <th>6-6</th> <th>Direction of a pattern</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td>OFF</td> <td>Standard (Factory-set)</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>Turn a pattern to the right direction by 90° around the origin.</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>Turn a pattern to the right direction by 90° around a sewing start point.</td> </tr> <tr> <td>ON</td> <td>ON</td> <td>Turn a pattern by 180° round the origin.</td> </tr> </tbody> </table>	6-5	6-6	Direction of a pattern	OFF	OFF	Standard (Factory-set)	ON	OFF	Turn a pattern to the right direction by 90° around the origin.	OFF	ON	Turn a pattern to the right direction by 90° around a sewing start point.	ON	ON	Turn a pattern by 180° round the origin.
6-5	6-6	Direction of a pattern														
OFF	OFF	Standard (Factory-set)														
ON	OFF	Turn a pattern to the right direction by 90° around the origin.														
OFF	ON	Turn a pattern to the right direction by 90° around a sewing start point.														
ON	ON	Turn a pattern by 180° round the origin.														
	<ul style="list-style-type: none"> <li>• <b>SW6-8</b> Selects adequate sewing speed when sewing operation is started.</li> </ul> <p>ON ..... High speed :</p> <p>Set the switch to ON, when you require higher sewing speed for cycle sewing. It is to be noted that the high speed sewing might cause some troubles at sewing start, as a stitch skipping, or a thread slipping-off from the needle. Be careful in programming a new pattern, for such troubles depend on handling of a needle for a pattern, or a combination of a material cloth and a thread.</p> <p>OFF ..... Standard speed (Factory-set)</p> <ul style="list-style-type: none"> <li>• <b>SW6-3, 4</b> These switches are used for maintenance. Be sure not to use them.</li> </ul>															

Switch name	Function																																								
<p>⑦ DIP switches 7 (SW7)</p>	<ul style="list-style-type: none"> <li>• SW7-1 Used to switch over the type of the P-ROM. ON ..... Not used OFF ..... For the 2764 For the 2764 (EP-ROM) For 58C65 For 58C65 (EEP-ROM)</li> <li>• SW7-2 Not used</li> </ul>																																								
<p>⑧ DIP switches 8 (SW8)</p>	<ul style="list-style-type: none"> <li>• SW8-1 } Do not use these switches, since they are the switches for maintenance.</li> <li>• SW8-2 }</li> <li>• SW8-3 Used, in combination with the SW6-8, to further increase the sewing speed at the start of sewing.</li> </ul> <table border="1" data-bbox="576 598 1331 850"> <thead> <tr> <th>SW6-8</th> <th>SW8-3</th> <th>1st stitch</th> <th>2nd stitch</th> <th>3rd stitch</th> <th>4th stitch</th> <th>5th stitch</th> <th>6th stitch</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td>OFF</td> <td>200</td> <td>→ 600</td> <td>→ 1000</td> <td>→ 1400</td> <td>→ 1800</td> <td>→ 2000 →</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>600</td> <td>→ 600</td> <td>→ 1000</td> <td>→ 1400</td> <td>→ 1800</td> <td>→ 2000 →</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>200</td> <td>→ 2000</td> <td>→</td> <td></td> <td></td> <td></td> </tr> <tr> <td>ON</td> <td>ON</td> <td>2000</td> <td>→</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <ul style="list-style-type: none"> <li>• SW8-4 Used to switch over ON/OFF of the feeding frame at the sewing end. <ul style="list-style-type: none"> <li>ON ..... The feeding frame is kept lowered at the sewing end. (It can be raised by pressing the feeding frame switch.)</li> <li>OFF ..... The feeding frame goes up at the sewing end. (Set to this side at the time of delivery.)</li> </ul> </li> </ul>	SW6-8	SW8-3	1st stitch	2nd stitch	3rd stitch	4th stitch	5th stitch	6th stitch	OFF	OFF	200	→ 600	→ 1000	→ 1400	→ 1800	→ 2000 →	ON	OFF	600	→ 600	→ 1000	→ 1400	→ 1800	→ 2000 →	OFF	ON	200	→ 2000	→				ON	ON	2000	→				
SW6-8	SW8-3	1st stitch	2nd stitch	3rd stitch	4th stitch	5th stitch	6th stitch																																		
OFF	OFF	200	→ 600	→ 1000	→ 1400	→ 1800	→ 2000 →																																		
ON	OFF	600	→ 600	→ 1000	→ 1400	→ 1800	→ 2000 →																																		
OFF	ON	200	→ 2000	→																																					
ON	ON	2000	→																																						
<p>③ Rotary DIP switch 3 (SW3)</p> <p>④ Rotary DIP switch 4 (SW4)</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>SW3</p> </div> <div style="text-align: center;">  <p>SW4</p> </div> </div>	<p>SW3 and SW4 are used for maintenance to adjust the origin. Be sure not to change the setting of them.</p>																																								

Switch	Function																												
<p>⑤ Rotary DIP switch 5 (SW5)</p>  <p>SW5</p>	<ul style="list-style-type: none"> <li>This switch is used for test operation.</li> </ul> <ol style="list-style-type: none"> <li>In case checking the functions of the switches or sensor inputs.             <ol style="list-style-type: none"> <li>Set SW5 at "1 ~ 5" on the dial, and turn the power switch ON.</li> <li>While the individual signals are inputted, SW5, in each step of the set value, serves to check the inputs of the signals by lighting up Error LED.                 <p>The details of the signals to be checked is as follows:</p> </li> <li>After checking the input, be sure to set the SW5 at "zero" on the dial.</li> </ol> </li> </ol> <table border="1" data-bbox="641 478 1425 976"> <tr> <td data-bbox="641 478 792 646">Display LED</td> <td colspan="3" data-bbox="792 478 1425 646">  </td> </tr> <tr> <td data-bbox="641 646 792 695">Set value of SW5</td> <td colspan="3" data-bbox="792 646 1425 695"></td> </tr> <tr> <td data-bbox="641 695 792 743">1</td> <td data-bbox="792 695 1003 743"></td> <td data-bbox="1003 695 1214 743">X origin sensor</td> <td data-bbox="1214 695 1425 743">± X limit sensor</td> </tr> <tr> <td data-bbox="641 743 792 791">2</td> <td data-bbox="792 743 1003 791">± Y limit sensor</td> <td data-bbox="1003 743 1214 791">Y origin sensor</td> <td data-bbox="1214 743 1425 791"></td> </tr> <tr> <td data-bbox="641 791 792 840">3</td> <td data-bbox="792 791 1003 840">Forward switch</td> <td data-bbox="1003 791 1214 840">Backward switch</td> <td data-bbox="1214 791 1425 840">Return to origin switch</td> </tr> <tr> <td data-bbox="641 840 792 888">4</td> <td data-bbox="792 840 1003 888">Presser switch</td> <td data-bbox="1003 840 1214 888">Start switch</td> <td data-bbox="1214 840 1425 888">Thread breakage detection signal</td> </tr> <tr> <td data-bbox="641 888 792 976">5</td> <td data-bbox="792 888 1003 976">Up detection signal</td> <td data-bbox="1003 888 1214 976">Down detection signal</td> <td data-bbox="1214 888 1425 976">Emergency stop switch</td> </tr> </table> <ol style="list-style-type: none"> <li>In case of checking the position of the origin             <ol style="list-style-type: none"> <li>Set SW5 at "7" on the dial with the power switch OFF. Then turn the power switch ON.</li> <li>Treading the foot switch lowers the feeding frame, automatically refers the origin, stops at the origin, and raise the feeding frame.</li> <li>After checking the position of the origin, be sure to set the SW5 at "zero" on the dial.</li> </ol> </li> </ol> <p><b>(Notes)</b></p> <ol style="list-style-type: none"> <li>Run the sewing machine for normal sewing operation, with the SW5 at "0".</li> <li>The dial value, "6" and "8 ~ F" are selected for maintenance. Be sure not to set SW5 at "6" or "8 ~ F".</li> </ol> <ol style="list-style-type: none"> <li>When the AMS-206C is used as an automatic sewing machine.             <p>With the power to the sewing machine OFF, set the SW5 to graduation "B".</p> <p>Then, the machine will perform the following steps of operation.</p> <ol style="list-style-type: none"> <li>When the power to the machine is turned ON, the machine will retrieve the origin and travel to the sewing start point according to the data of the X/Y scale. (You may skip operation of the SET READY switch.)</li> <li>Upon completion of the sewing, the machine will retrieve the origin and travel to the sewing start point.</li> <li>For the machine with the 1-pedal unit, the feeding frame is kept to its ON position if the work clamp switch is set to ON at the sewing end.</li> </ol> <p>Refer to the description of the output sewing machine signals for modification for the detailed information on the signals which tell the state of the sewing machine.</p> </li> </ol> <p><b>(Caution)</b></p> <ol style="list-style-type: none"> <li>For the normal sewing operation, run the machine with the SW5 set at graduation "0".</li> <li>Graduations "6", "8", "9", "A" and "C through F" are for maintenance. Do not used them.</li> </ol>	Display LED				Set value of SW5				1		X origin sensor	± X limit sensor	2	± Y limit sensor	Y origin sensor		3	Forward switch	Backward switch	Return to origin switch	4	Presser switch	Start switch	Thread breakage detection signal	5	Up detection signal	Down detection signal	Emergency stop switch
Display LED																													
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3	Forward switch	Backward switch	Return to origin switch																										
4	Presser switch	Start switch	Thread breakage detection signal																										
5	Up detection signal	Down detection signal	Emergency stop switch																										

## 11. How to replace data P-ROM

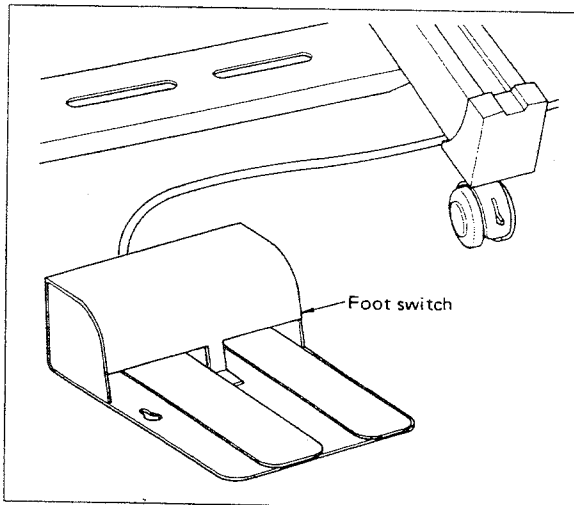


1. Data P-ROM ① is fixed on IC socket ② on the MAIN printed circuit board in the control box.
2. Turning cam ③ of IC socket ② counterclockwise, P-ROM ① will come off.
3. Insert a new P-ROM into IC socket ②, turn cam ③ of IC socket clockwise, and fix P-ROM. (Ensure that the P-ROM will not easily detach from the IC socket.)

(Note) Be sure to turn the power switch OFF, when replacing P-ROM.

## 12. Foot switch

This foot switch has two switches inside, and is two-steps type. The first switch is the feeding frame switch, and the second one is the start switch.

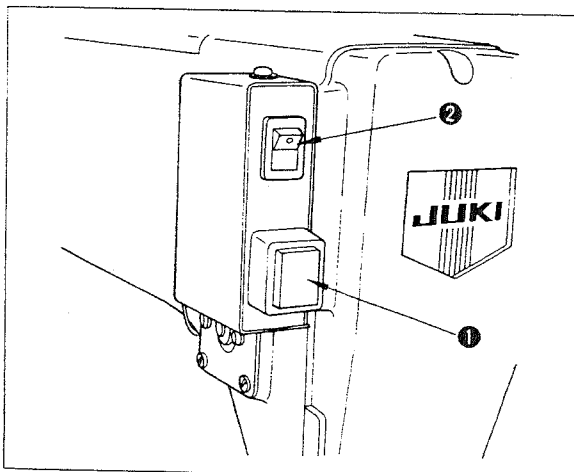


- 1) When the first switch (the feeding frame switch) is treadled, the feeding frame comes down. Releasing the switch raises the feeding frame.
- 2) Keep treadling the first switch, and treadle the foot switch (the start switch) to give it another press for turning the power switch ON. Turning the start switch ON starts sewing operation.

(Note) You may treadle the first switch and the second switch with different pressure and stroke. Be careful not to treadle the foot switch too excessively, for an excessively strong treadle on the foot switch lowers the feeding frame and actuate the sewing machine at once.

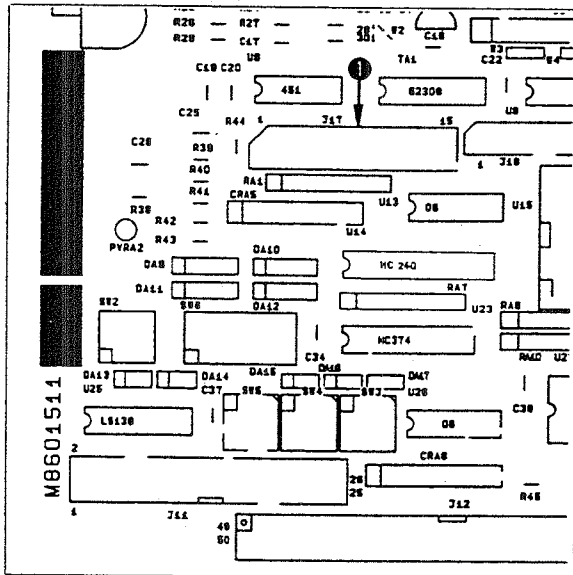
## 13. Emergency stop switch and Wiper ON/OFF switch

(These switches are provided to AMS-206C as standard equipments.)



- ① **Emergency stop switch**  
Press this switch to stop the cloth feed or sewing mechanisms of the machine during operation.
- ② **Wiper ON/OFF switch**  
Turning the wiper switch OFF, the wiper stops its job.  
For normal sewing operations, turn the wiper switch ON to perform the job.

## 14. External output signals (sewing machine signals)



Various signals are output so as to check the state of sewing machine.

The following signals are output to connector J17 ①.

- J17 -1: Sewing signal
- 2: Feeding frame signal
- 3: Up position signal
- 4: Down position signal
- 5: Motor stop signal
- 6: Error signal
- 7: Blank
- 8: Switch of the feeding frame
- 9: Starting switch
- 10: Emergency stop switch
- 11: +5V
- 12: GND
- 13: GND
- 14: GND
- 15: Blank

Use the following connectors to output the signals.

Connector 15P: MITSUMI M86M87-15

Pin terminal: MITSUMI M31C8-4

Contact your nearest dealer for further information, if necessary.

Sewing signal:	Output when the start switch is turned ON until the sewing operation is completed and the feeding frame is turned OFF.	
Feeding frame signal:	Output as long as the feeding frame is turned ON.	
Up position signal:	Output when the needle is in its highest position.	
Down position signal:	Output when the needle is in its lowest position.	
Motor stop signal:	Output as long as the electronic-stop motor is stopped.	
Error signal:	Output when a sewing machine error occurs simultaneously with the corresponding error message.	
Switch of the feeding frame:	When this switch is turned ON (set to the 0V position), the feeding frame will come down.	] The functions of these switches are same as those of the pedal switches.
Start switch:	When this switch is turned ON (set to the 0V position), the sewing machine will start running.	
Emergency stop switch:	When this switch is turned ON (set to the 0V position), the sewing machine will stop sewing. The function of this switch is the same as that of the emergency stop switch mounted on the sewing machine head.	

## 15. Interchangeability of the data ROM with the programming device

Programming device	Programming device		
	PGM-5	PGM-2B	PGM-2
P-ROM			
EP-ROM for AMS-205A/-206A	X	○	○
EER-ROM for AMS-205B/C, AMS-206B/C	○	○	X

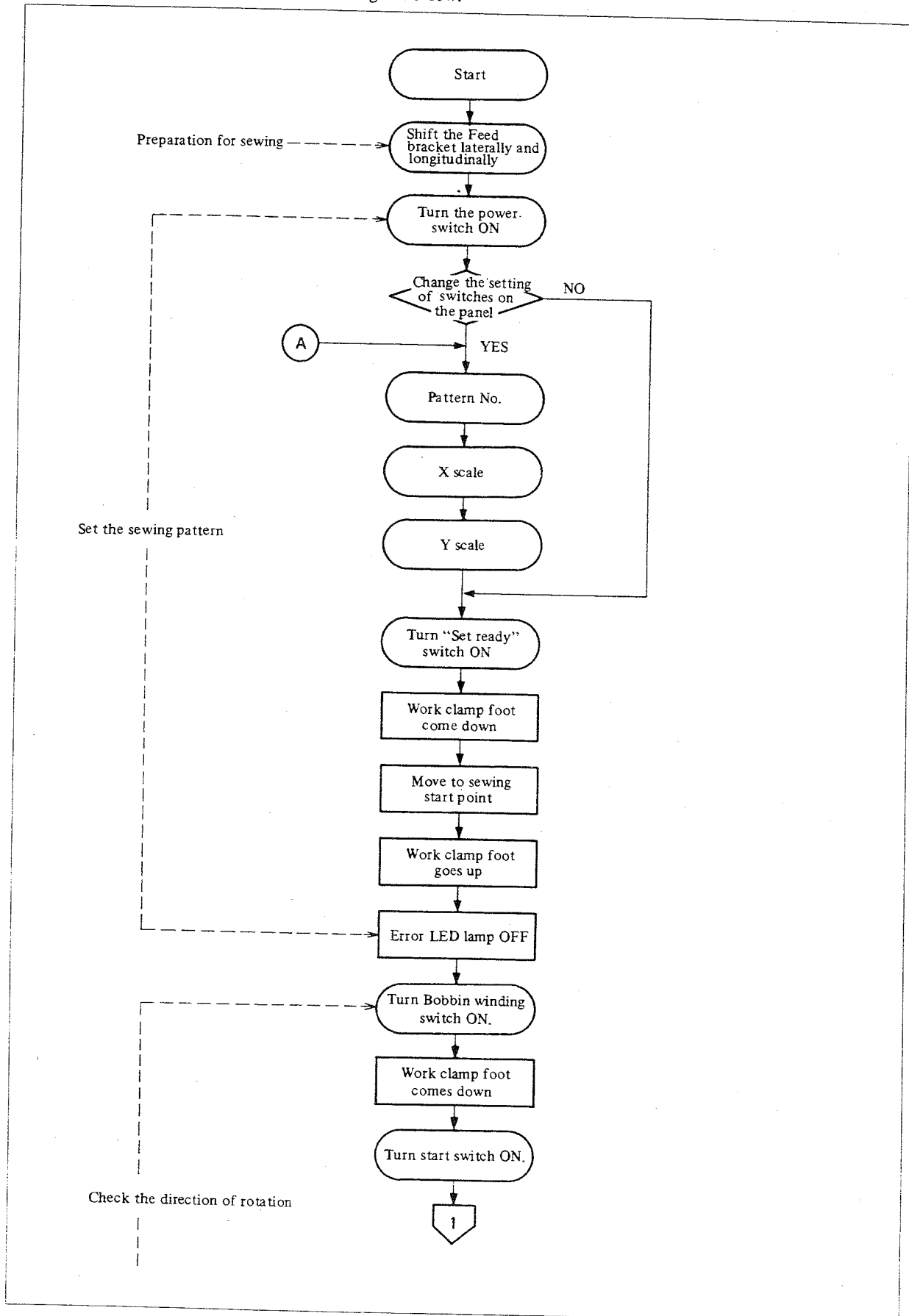
Erasing the data stored in the data ROM

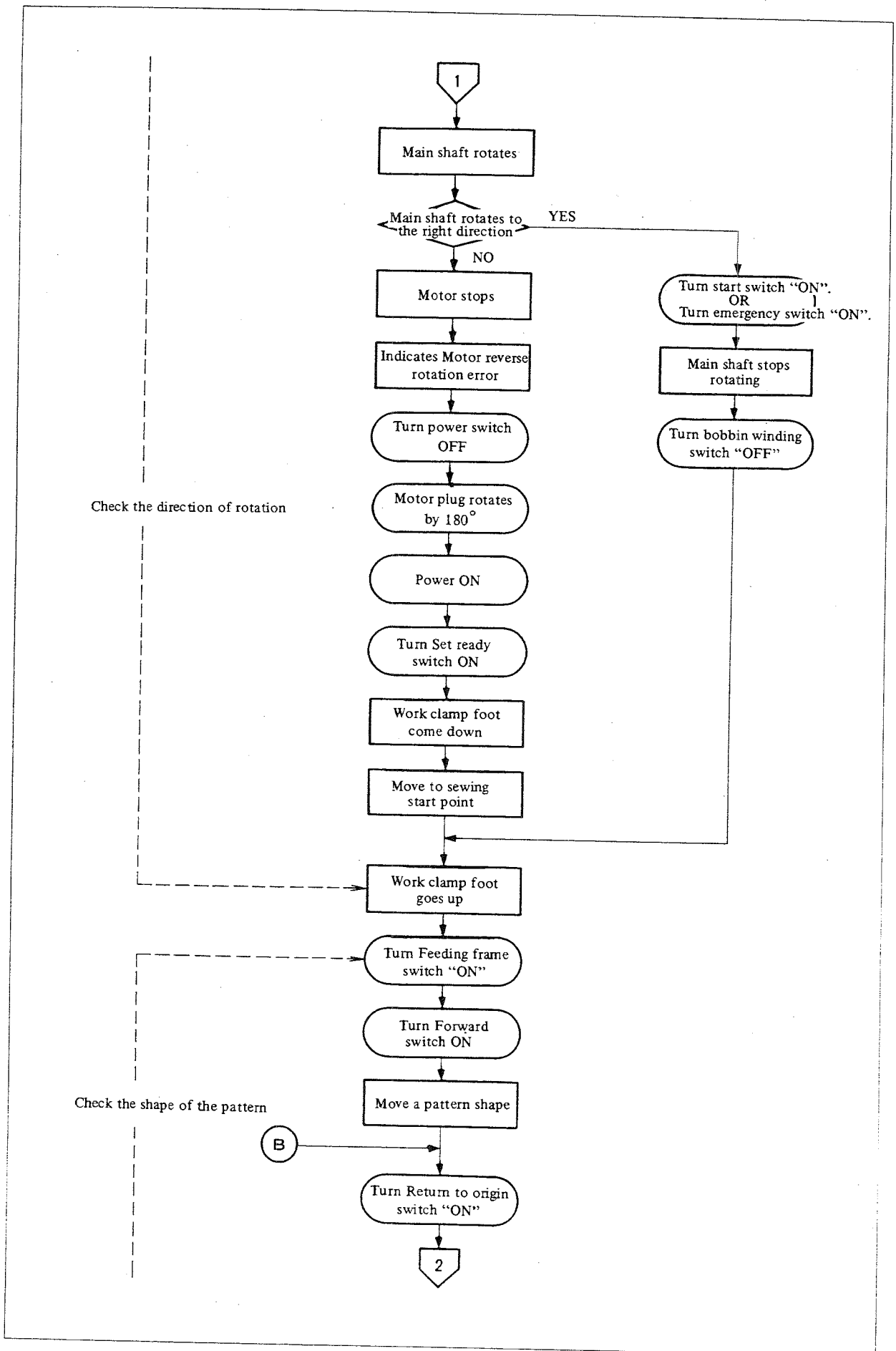
\* EP-ROM . . . . . Using the PGM-2B or a commercially available data eraser

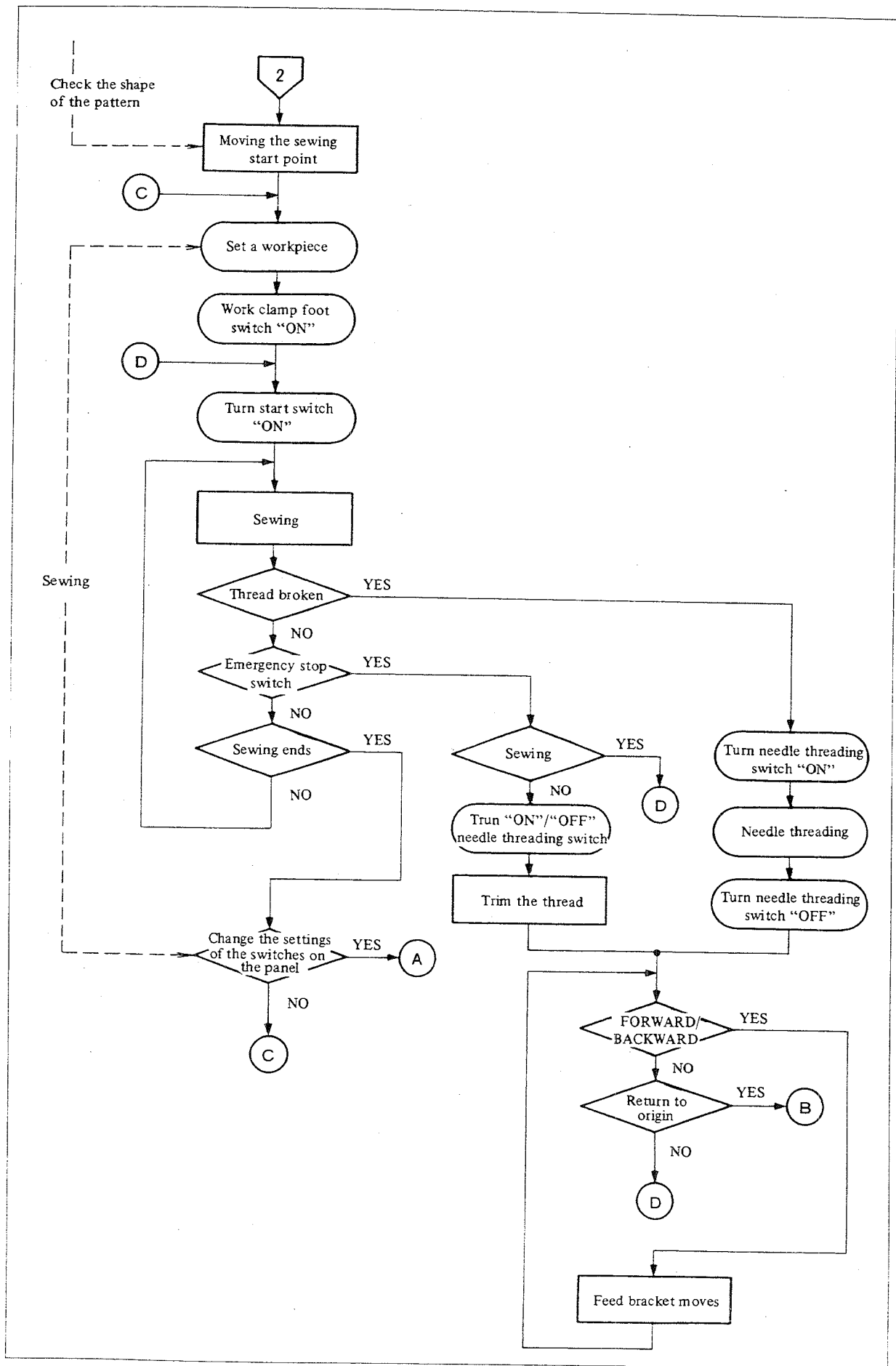
\* EER-ROM . . . . . Using the PGM-5 or PGM-2B

## 16. Operation

Follow the operation procedure flow chart given below.







★ **Cautions in Operation**

- 1) Before sewing a new pattern or a newly enlarged pattern, be sure to carry out trial sewing to check the pattern size with respect to the feeding frame.
- 2) The maximum sewing speed varies according to the stitch length.  
The maximum sewing speed is automatically limited as shown in the table below according to the stitch length. If necessary, the maximum sewing speed can also be limited manually using the max. speed limit control knob.

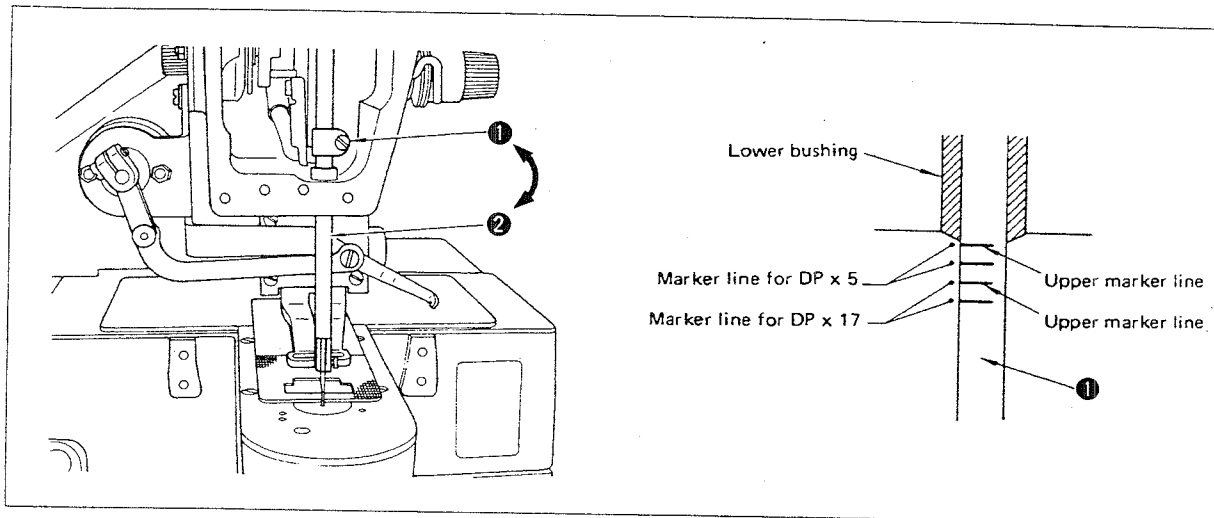
Stitch length (mm)	Max. sewing speed (s.p.m.)
4.8 ~ 6.2	800
4.0 ~ 4.6	1,100
3.4 ~ 3.8	1,600
3.2	1,800
3.0 or less	2,000

- 3) When an error indication is given, be sure to identify the cause and take corrective action.
- 4) Prior to operation, be sure to close the control box cover in order to prevent dust from getting into the control box. Dust into the control box may lead to malfunctions or failures.
- 5) Be sure to turn the power OFF before opening the control box cover.
- 6) Avoid checking the control circuitry by a tester, or else the tester voltage may be applied to a semiconductor component, and the component may be damaged.
- 7) Be sure that there is no obstacle under the needle before depressing the start switch to wind a bobbin.
- 8) After turning ON the preparation switch, the operation is carried on. And upon the completion of the operation, the feeding frame comes down automatically.  
So be sure not to place your fingers between the feeding frame.
- 9) Avoid pulling the workpiece while sewing. This may prevent correct needle entry. If X or Y needle entry point should be dislocated, press the Set Ready switch twice to go back to the sewing start point.
- 10) Be careful sufficiently to handle a P-ROM. If a foot section of a P-ROM is bent or broken, it cannot be used any more. If an EP-ROM is exposed to the fluorescent lamp or the sun light for a long time with the ultraviolet rays shield seal is removed, the data stored in the EP-ROM might be erased. Be sure to use an EP-ROM with the ultraviolet rays shield seal stuck.

## IV. MAINTENANCE

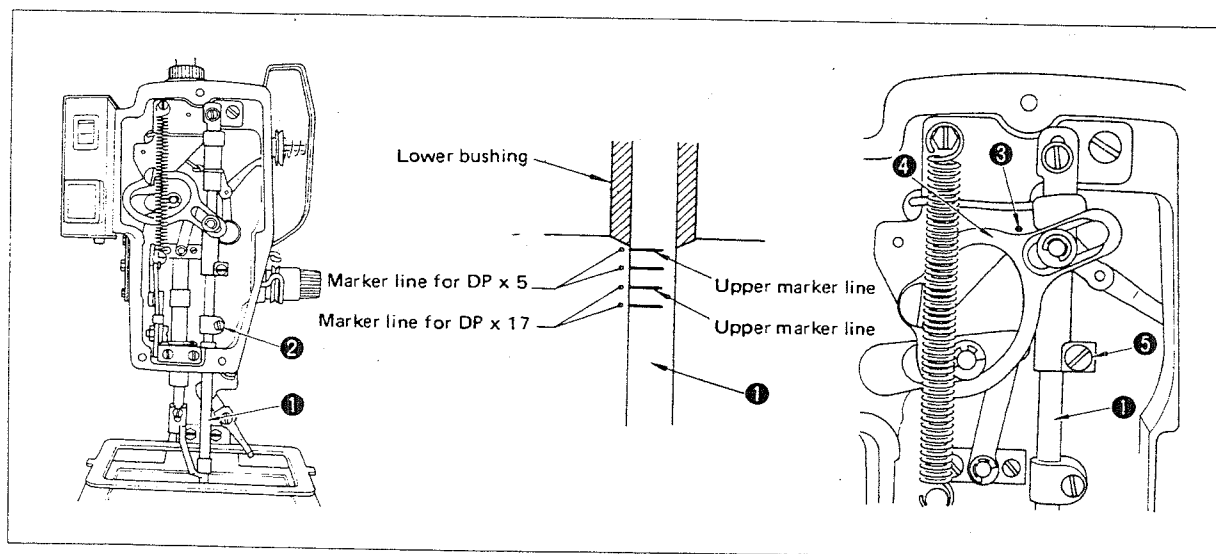
### 1. Adjusting the height of the needle bar

#### ★ AMS-205C



Bring needle bar ① down to the lowest point of its stroke. Loosen setscrew ②, and adjust so that the upper marker line on the needle bar aligns with the bottom end of the lower bushing of the needle bar.

#### ★ AMS-206C

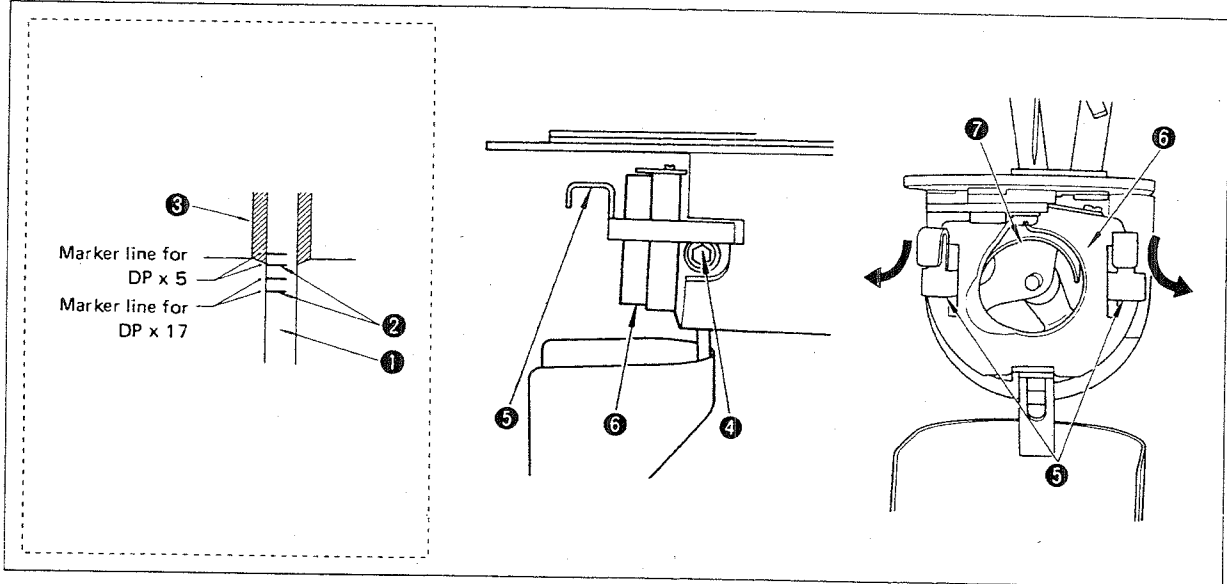


- 1) Bring needle bar ① down to the lowest point of its stroke. Loosen setscrew ②, and adjust so that the upper marker line on the needle bar aligns with the bottom end of the lower bushing of the needle bar.
- 2) The needle bar has a pair of marker lines for the DP x 5 needle, and another pair for the DP x 17. Properly use these pairs of marker lines according to the needle used.  
(Only the DP x 17 marker line is used for AMS-205C/206C for sewing heavy-weight materials.)

- 3) After adjustment, move needle bar ① up to its highest position. Loosen screw ⑤, and adjust so that cam ④ is positioned as illustrated with respect to red marker dot ③.

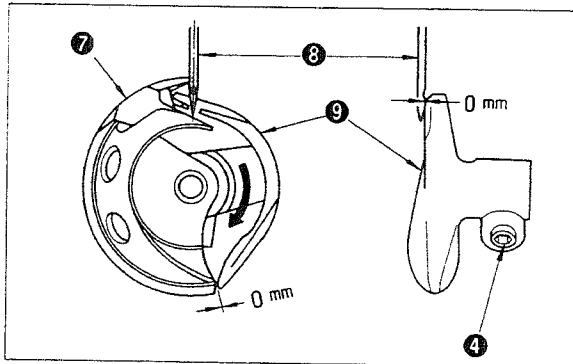
**(Note)** After adjustment, be sure to turn the handwheel to check for its smooth rotation. Make the hook timing slightly slower for sewing floppy materials, or make it slightly faster for sewing heavy-weight materials to adjust the hook timing.

## 2. Adjusting the needle-to-shuttle relationship

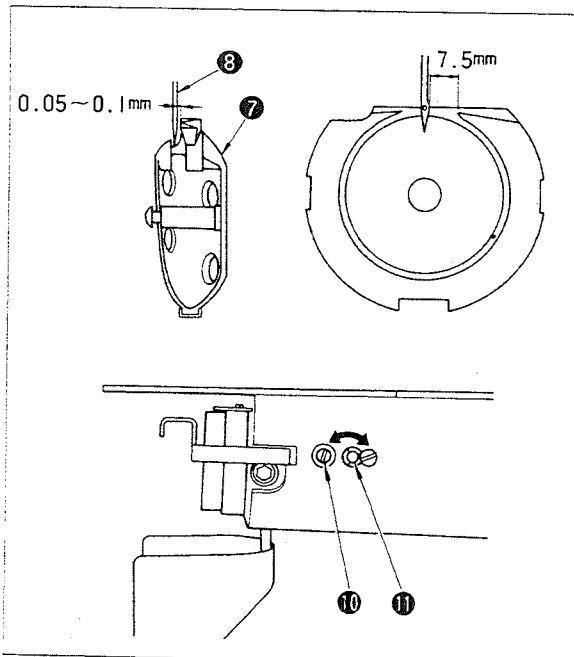


- 1) Turn the handwheel by hand to raise needle bar ① so that marker line ② aligns with the bottom end of needle bar lower bushing ③. Loosen setscrew ④ (with hexagon socket head). Open right and left hooks ⑤ in the direction of the arrows while pulling them toward you, and remove shuttle race ring ⑥.

**(Caution)** At this time, be careful not to let shuttle ⑦ come off and fall.

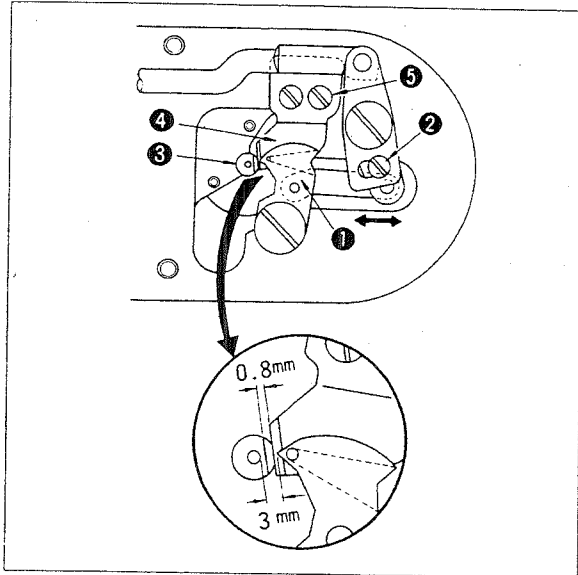


- 2) Adjust so that the point of shuttle ⑦ meets the center of needle ⑧, and that the clearance between the front end surface of shuttle driver ⑨ and the needle becomes 0 mm. (The front face of shuttle driver ⑨ serves to prevent the needle from bending.) After adjustment, tighten shuttle driver setscrew ④.



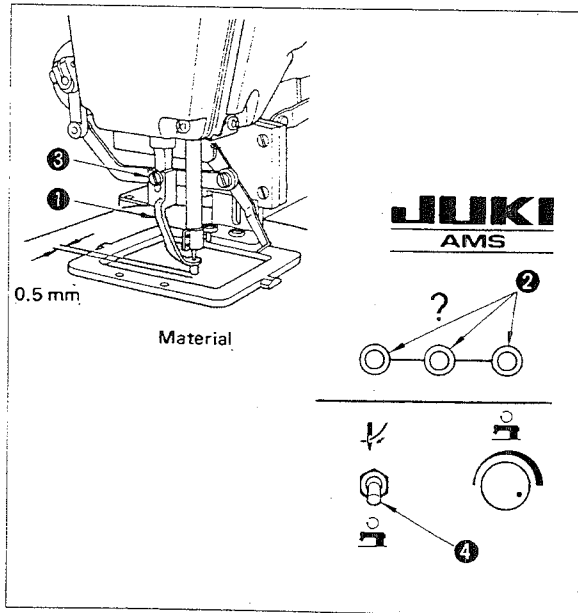
- 3) Loosen shuttle race setscrew ⑩, and adjust the longitudinal position of the shuttle race. To do this adjustment, turn shuttle race adjusting shaft ⑪ clockwise or counterclockwise to provide a 0.05 to 0.1 mm clearance between the needle ⑧ and the point of shuttle ⑦.
- 4) After adjusting the longitudinal position of the shuttle race, further adjust to provide a 7.5 mm clearance between the needle and the shuttle race. Tighten setscrew ⑩.



### 3. Adjusting the moving knife and the counter knife



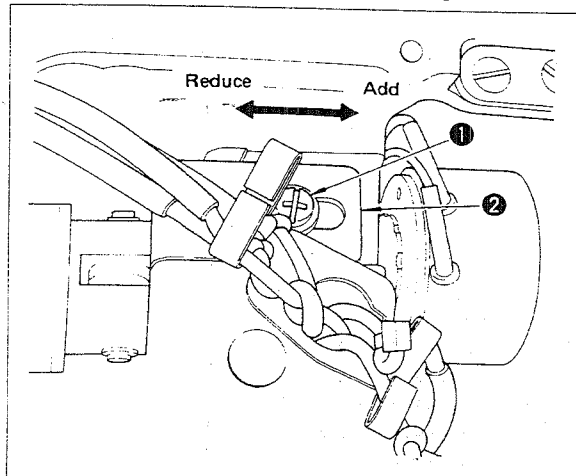
- 1) Loosen adjusting screw ②, and adjust so that, when the machine stops with its needle up, a 3 mm clearance is provided between the thread spreader of moving knife ① and the periphery of the needle hole.
- 2) After adjustment, manually actuate the thread trimmer to check for proper positioning.
- 3) Loosen setscrew ⑤, and adjust to provide a 0.8 mm clearance between needle hole guide ③ and counter knife ④.

### 4. Adjusting the height of the intermediate presser (model AMS-206C)



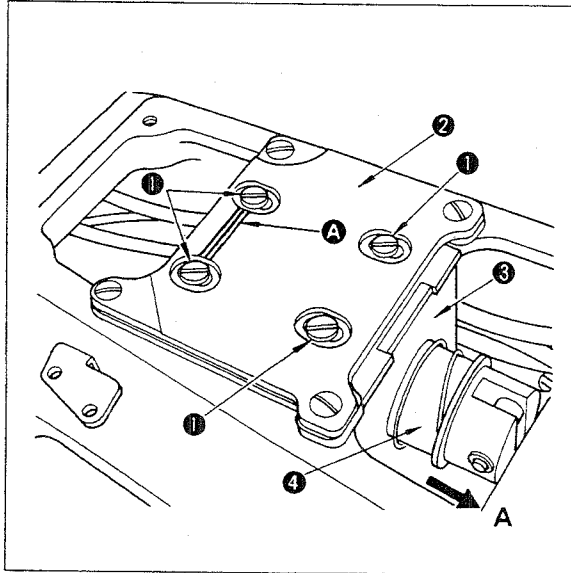
- 1) Be sure that the needle is positioned at the center of the hole in intermediate presser ①.
- 2) Confirm that the error LED ② is OFF, then set needle threading switch ④ on the control box to  to cause the feeding frame and the intermediate presser to come down. Turn the handwheel to bring down the needle to its lowest position. Loosen screw ③, and adjust to provide a 0.5 mm clearance between the sole of the intermediate presser and the material. (Caution) Never depress the start switch.
- 3) After adjustment, set the needle threading switch ④ to , and turn the handwheel to stop the needle bar at its upper position.

### 5. Adjusting the height of the feeding frame



Loosen nut ①, move presser adjusting plate ② to the direction of the arrow and adjust the height. Turning feeding frame adjusting plate to the left direction reduces the height. Turning feeding frame adjusting plate to the right direction adds the height.

## 6. Adjusting for heavy-weight material



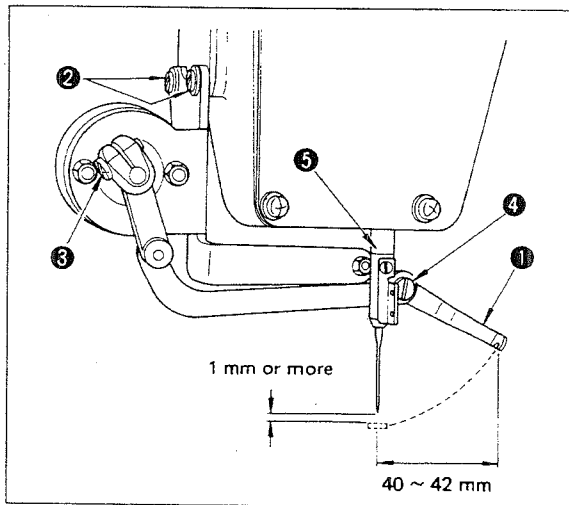
The material of which thickness is more than 6 mm, is too thick for the feed plate to hold. Be sure to perform the adjustment mentioned below when you sew such a material.

In a standard state, feed plate solenoid ③ is fixed to the opposite direction of arrow A. When you sew materials which are more than 6 mm thick, loosen setscrew ① and shift the feed plate solenoid to the direction of arrow A, and fix the feed plate solenoid so that the center of setscrew aligns with marker A on solenoid fixing plate ②, and fix the feed plate solenoid.

(Note) When plunger ④ works stiffly in feed plate solenoid ③, tightening setscrews ① might cause an inaccuracy of a sewing pattern shape resulted from the insufficient pressure of the work clamp foot. Take enough care when tightening the setscrews to prevent it.

## 7. Adjusting the wiper

★ AMS-205C

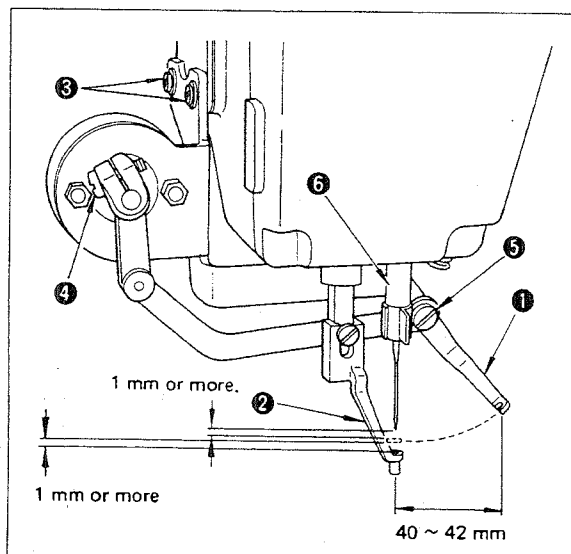



When wiper ① passes under the needle point, the clearance between the wiper and the needle should be 1 mm or more. When the wiper returns its home position, the distance between the end face of the wiper and the center of the needle should be 40 to 42 mm. Adjust the position of the wiper with adjusting screws ② and ③.

(Caution)

When adjusting the position of the wiper, make sure that wiper ① passes vertically under the needle point, and that wiper hinge screw ④ does not come in contact with needle bar ⑤.

★ AMS-206C



While the Error LED lamp is not lighting, set the needle threading switch to .

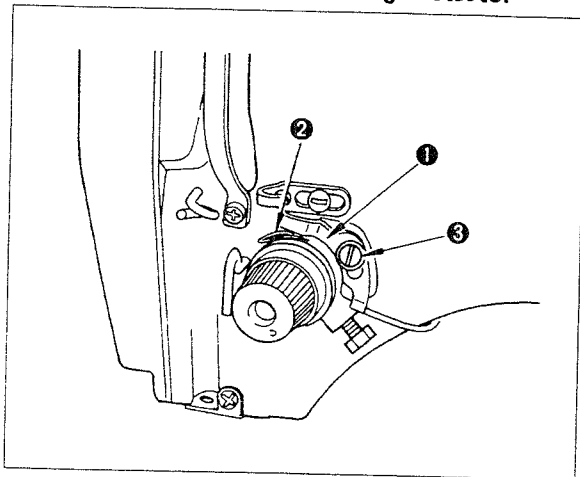
When wiper ① passes under the needle point, each of the clearance between the wiper and the needle, and between the wiper and intermediate presser ②, should be 1 mm or more. When the wiper returns to its home position, the distance between the end face of the wiper and the center of the needle should be 40 to 42 mm. Adjust the position of the wiper with adjusting screws ③ and ④.

(Caution)

When adjusting the position of the wiper, make sure that wiper ① passes vertically under the needle point, and that wiper hinge screw ⑤ does not come in contact with needle bar ⑥.

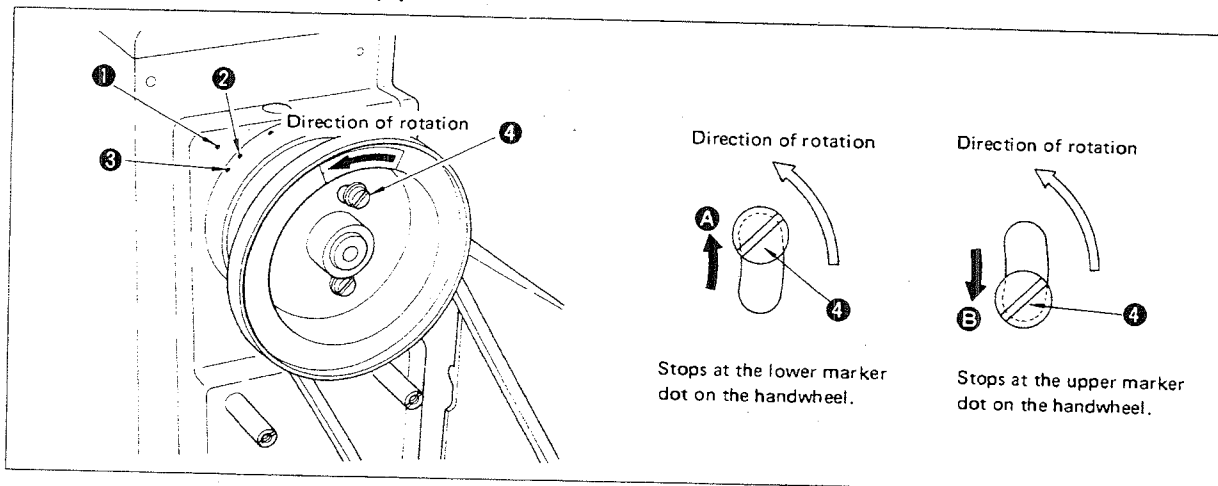
When the material thickness exceeds 3 mm, the clearance provided between the intermediate presser and the needle will be reduced. As a result, the wiper cannot be operated. In this case, set the wiper ON/OFF switch to the OFF position.

## 8. Adjusting the thread breakage detector



- 1) Adjust so that thread breakage detector disk ① is always in contact with thread take-up spring ② in the absence of the needle thread. (slack: approx. 0.5 mm)
- 2) Whenever the stroke of thread take-up spring ② has been changed, be sure to readjust thread breakage detector disk ①. To make this adjustment, loosen screw ③.
- 3) Adjust so that thread breakage detector disk ① does not touch any adjacent metallic parts other than thread take-up spring ②.

## 9. Adjusting the needle-up stop position

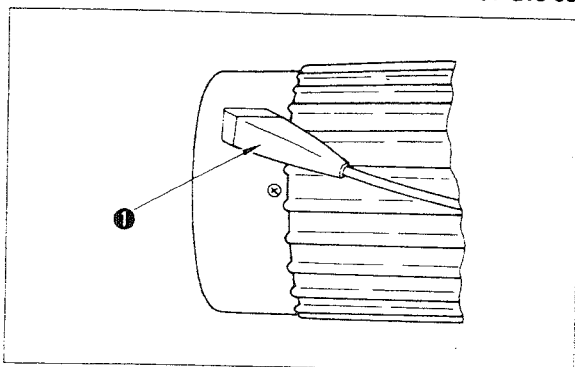


- 1) Marker dot ① on the machine arm should stop between upper marker dot ② and lower marker dot ③ on the handwheel.
- 2) When adjusting screw ④ is loosened and moved in the direction of arrow A, the machine will stop at lower marker dot ③. When it is moved in the direction of arrow B, the machine will stop at upper marker dot ②.

(Cautions) 1. Usually, no adjustment is required. However, if the stop position has been adjusted, be sure to check the new stop position, setting workpiece.

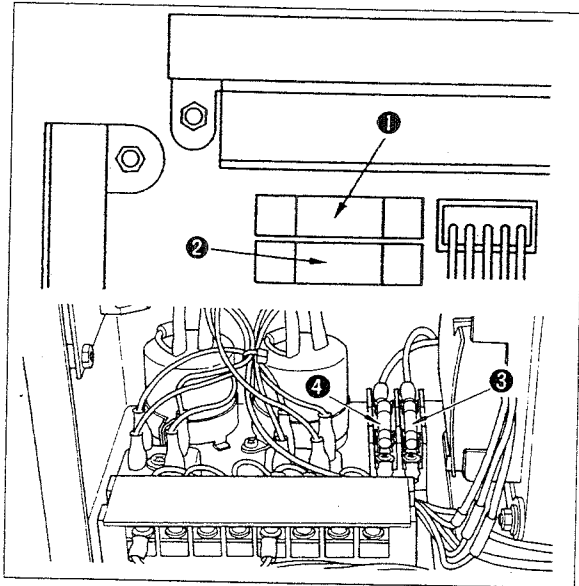
2. If the machine stops before the lower marker dot is reached, chances for thread trimmer failures or thread slipping off the needle may increase. On the contrary, if the machine stops beyond the upper marker dot, the wiper may interfere with the needle. Properly adjust the stop position.

## 10. Changing the direction of rotation of the sewing machine



- 1) Turn the power switch OFF.
- 2) Remove connector ① from the rear of the motor (on the opposite side from the handwheel).
- 3) Reverse the connector by 180° and reconnect it. Connect it securely until it will go no further.

## 11. Replacing the fuse



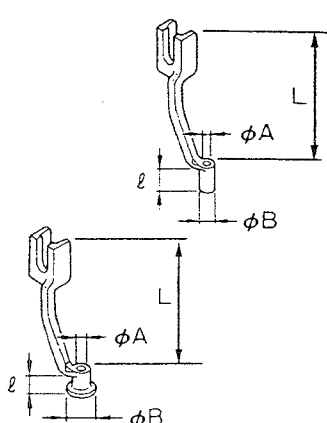
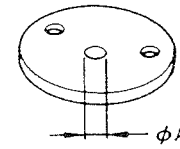
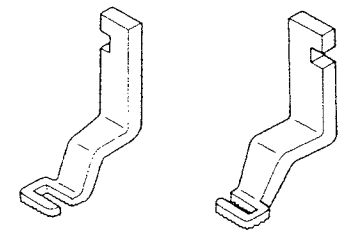
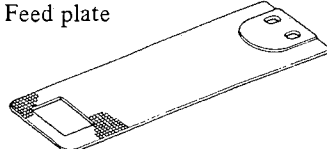
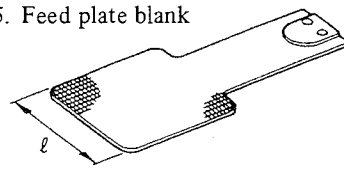
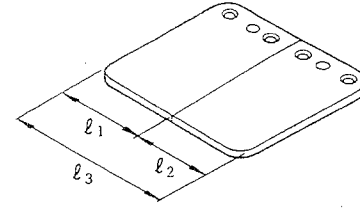
The machine is equipped with four fuses:

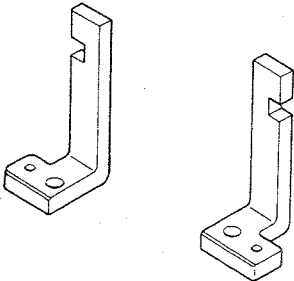
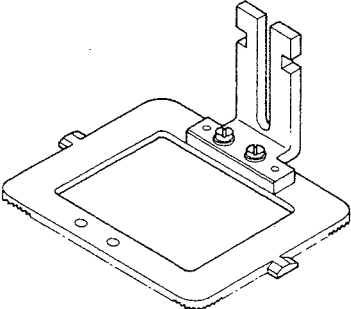
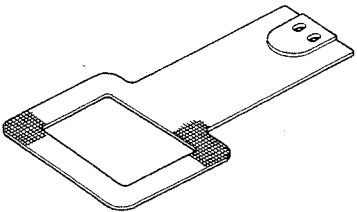
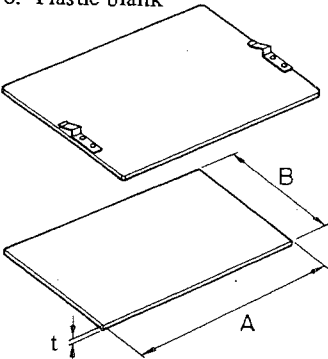
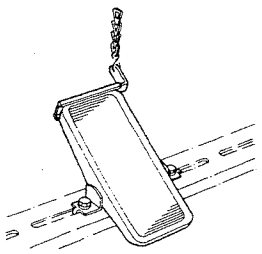
- ① For printed circuit board power supply A protection (Printed circuit board F1)  
3A standard melting fuse
- ② For printed circuit board power supply B protection (Printed circuit board F2)  
1A standard melting fuse
- ③ For solenoid power supply protection (Power supply F1)  
7AT time-lag fuse
- ④ For stepping motor power supply protection (Power supply F2)  
7AT time-lag fuse

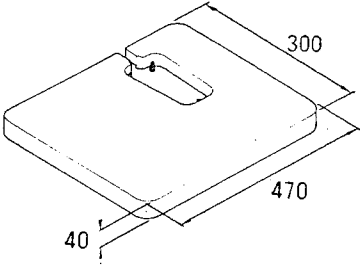
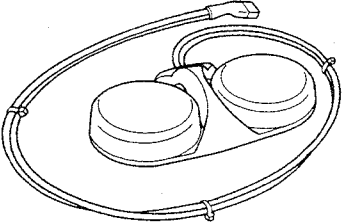
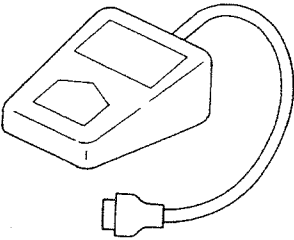
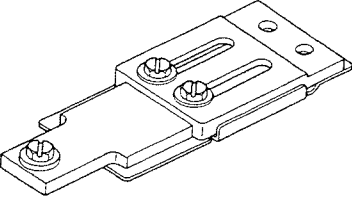
(Note) When replacing a blown fuse, turn the power switch OFF, open the control box cover, and replace it with a new fuse with the specified capacity.

## ★ Service patterns diagram

No.	Service patterns		
	Name	Sewing size when scale is set at 100%	Stitches sewn
01	42-stitches large bartacking	(width) (length) 16 x 2	
02	36-stitches large bartacking	16 x 2	
03	26-stitches large bartacking	16 x 2	
04	56-stitches large bartacking	16 x 2	
05	36-stitches small bartacking	8 x 2	
06	28-stitches small bartacking	8 x 2	
07	21-stitches small bartacking	8 x 2	
08	28-stitches lenear bartacking	14 x 0	
09	21-stitches lenear bartacking	14 x 0	
10	36-stitches lenear bartacking	16 x 0	
11	28-stitches bartacking for knitted fabric	8 x 2	
12	21-stitches bartacking for knitted fabric	8 x 2	

Name of part	Type	Part No.	Size (mm)
<p>1. Intermediate presser</p> 	Intermediate presser (A)	B1601 210 000	$\phi A \times \phi B \times l \times L$ 3.5 x 5.5 x 4 x 42.5
	Intermediate presser (B)	B1601 210 00B	$\phi A \times \phi B \times l \times L$ 3.5 x 5.5 x 6 x 40.5
	Intermediate presser (D)	B1601 210 00D	$\phi A \times \phi B \times l \times L$ 2.2 x 3.6 x 6 x 40.5
	Intermediate presser (E)	B1601 210 00E	$\phi A \times \phi B \times l \times L$ 1.6 x 2.6 x 6 x 40.5
	Intermediate presser (G)	B1601 210 00G	$\phi A \times \phi B \times l \times L$ 3 x 5 x 8 x 40.5
	Intermediate presser (G)	B1601 220 00G	$\phi A \times \phi B \times l \times L$ 2.7 x 4.1 x 5 x 29.5
	Intermediate presser (C)	B1601 210 00C	$\phi A \times \phi B \times l \times L$ 3.5 x 10 x 5 x 41.5
<p>2. Needle hole guide</p> 	Needle hole guide (B) for medium-weight materials	B2426 210 00B	$\phi A = 2.0$
	Needle hole guide (C) for knitted materials	B2426 210 00C	$\phi A = 1.6$
	Needle hole guide (D) for heavy-weight materials	B2426 210 00D	$\phi A = 2.4$
	Needle hole guide (F) for heavy-weight materials	B2426 210 00F	$\phi A = 3.0$
	Needle hole guide (G) for heavy-weight materials	B2426 210 00G	$\phi A = 3.0$ (Provided with a countersinking section)
<p>3. Work clamp foot</p> 	Work clamp foot (right)	B2551 205 000	
	Work clamp foot (left)	B2552 205 000	
	Work clamp foot (right) for small bartacking	B2551 205 B00	
	Work clamp foot (left) for small bartacking	B2552 205 B00	
	Work clamp foot (right) for knitted materials	B2551 205 C00	
	Work clamp foot (left) for knitted materials	B2552 205 C00	
<p>4. Feed plate</p> 	Feed plate	B2556 205 000	
	Feed plate for small bartacking	B2556 205 B00	
	Feed plate for bartacking of knitted material	B2556 205 C00	
<p>5. Feed plate blank</p> 	Feed plate blank without knurl	B2556 206 0X0	$l = 104$
	Feed plate blank with knurl	B2556 206 0Y0	$l = 104$
<p>6. Feeding frame blank</p> 	Feeding frame assembly blank without knurl	B2553 206 0X0	$l_3 = 94$
	Feeding frame assembly blank with knurl	B2553 206 0Y0	$l_3 = 94$
	Feeding frame blank (right) without knurl	B2572 206 0X0	$l_1 = 50.5$
	Feeding frame blank (right) with knurl	B2572 206 0Y0	$l_1 = 50.5$
	Feeding frame blank (left) without knurl	B2573 206 0X0	$l_2 = 43.5$
	Feeding frame blank (left) with knurl	B2573 206 0Y0	$l_2 = 43.5$

Name of part	Type	Part No.	Size (mm)
7. Slide plate 	Right slide plate Left slide plate	B2570 206 0A0 B2571 206 0A0	
8. Feeding frame 	Slide plate assembly	B2551 206 0A0	
9. Feed plate 	Feed plate	B2556 206 000	
10. Plastic blank 	Large plastic feeding frame (asm.)	B2557 206 0A0	
	Feeding frame material (A) Feeding frame material (B)	B2587 210 000 B2588 210 000	A x B x t 210 x 150 x 1 A x B x t 210 x 150 x 1.5
11. Pedal 	Pedal	B8151 206 0AA	

Name of part	Type	Part No.	Size (mm)
12. Foot switch fixed plate 	Foot switch fixed plate	M1007 511 0A0	
13. Foot switch 	Pedal switch A assembly	M8590 510 0A0	
14. Foot switch 	Foot switch assembly	M85605110A0	
15. Auxiliary feed plate (asm.) 	Auxiliary feed plate (asm.)	B2564 210 0A0  Used with LK subclass feed plate	

## VI. TROUBLES AND CORRECTIVE MEASURES

Trouble	Cause	Corrective measures	Page
1. Thread slips off the needle at sewing start	① Stitches are skipped at sewing start.	○ Adjust the clearance between the needle and the shuttle to 0.05 to 0.1 mm.	28
	② The thread remaining on the needle after thread trimming is too short.	○ Decrease the tension given by thread tension controller No. 1.	10
	③ The bobbin thread is too short.	○ Increase the tension of the thread take-up spring.	11
	④ The feed timing is bad.	○ Decrease the bobbin thread tension. ○ Increase the clearance between the needle hole guide and the counter knife. ○ Properly adjust the feed timing.	10 29 18
2. Thread often breaks or synthetic thread splits finely.	① The shuttle or the shuttle driver has scratches	○ Remove the shuttle or the shuttle driver, and remove the scratches, using a whetstone or buff.	27
	② The needle hole guide has scratches.	○ Buff or replace the needle hole guide.	
	③ The needle hits the intermediate presser.	○ Adjust the position of the intermediate presser.	26
	④ Fibrous wastes are in the groove of the shuttle race.	○ Remove the shuttle, and remove the fibrous wastes.	
	⑤ The needle thread tension is too high.	○ Decrease the needle thread tension.	10
	⑥ The thread take-up spring tension is too high.	○ Decrease the thread take-up spring tension.	11
	⑦ The synthetic thread melts due to frictional heat.	○ Use silicone oil. ○ Use a needle with lower count. ○ Decrease the sewing speed.	8 8 11
3. Needle often breaks.	① The needle is bent.	○ Replace the needle.	8
	② The needle hits the intermediate presser.	○ Properly position the intermediate presser.	27
	③ The feed timing is bad.	○ Correct the feed timing.	18
	④ The needle is too thin for the material.	○ Use a needle of the size suited to the material.	8
	⑤ The needle bends in contact with the shuttle driver.	○ Correct the needle-to-shuttle relationship in position.	28
4. Thread trimmer fails to trim thread.	① The counter knife is dull.	○ Replace the counter knife.	29
	② The clearance between the needle hole guide and the counter knife is too small.	○ Correct the clearance.	29
	③ The moving knife has been improperly positioned.	○ Correct the position of the moving knife.	29
	④ The last stitch has been skipped.	○ Correct the timing between the needle and the shuttle.	28
5. Stitches are frequently skipped.	① The timing between the needle and the shuttle is bad.	○ Correctly position the shuttle with respect to the needle.	28
	② The clearance between the needle and the shuttle is too large.	○ Correctly position the shuttle with respect to the needle.	28
	③ The needle is bent.	○ Replace the needle.	8
	④ The feed timing is not correct.	○ Correct the feed timing.	18
	⑤ The needle bends in contact with the shuttle driver.	○ Correct the position of the shuttle driver.	28
	⑥ The height of the intermediate presser is incorrect.	○ Correct the height of the intermediate presser.	27
6. Loose stitches	① The needle thread tension is not high enough.	○ Increase the needle thread tension.	10
	② Thread tension disks No. 2 are released.	○ Properly install the thread tension disks No. 2.	10
	③ The feed timing is bad.	○ Correct the feed timing.	18
7. Thread breaks at the time of thread trimming.	① The moving knife has been improperly positioned.	○ Correct the position of the moving knife.	29

Trouble	Cause	Corrective measures	Page
8. The material is out of the predetermined sewing position.	① The material is not securely clamped with the feeding frame.	<ul style="list-style-type: none"> <li>○ Attach an antislipping material such as a piece of emery paper.</li> <li>○ Make a metallic feeding frame used exclusively prevent the material from slipping off the sewing position.</li> </ul>	

