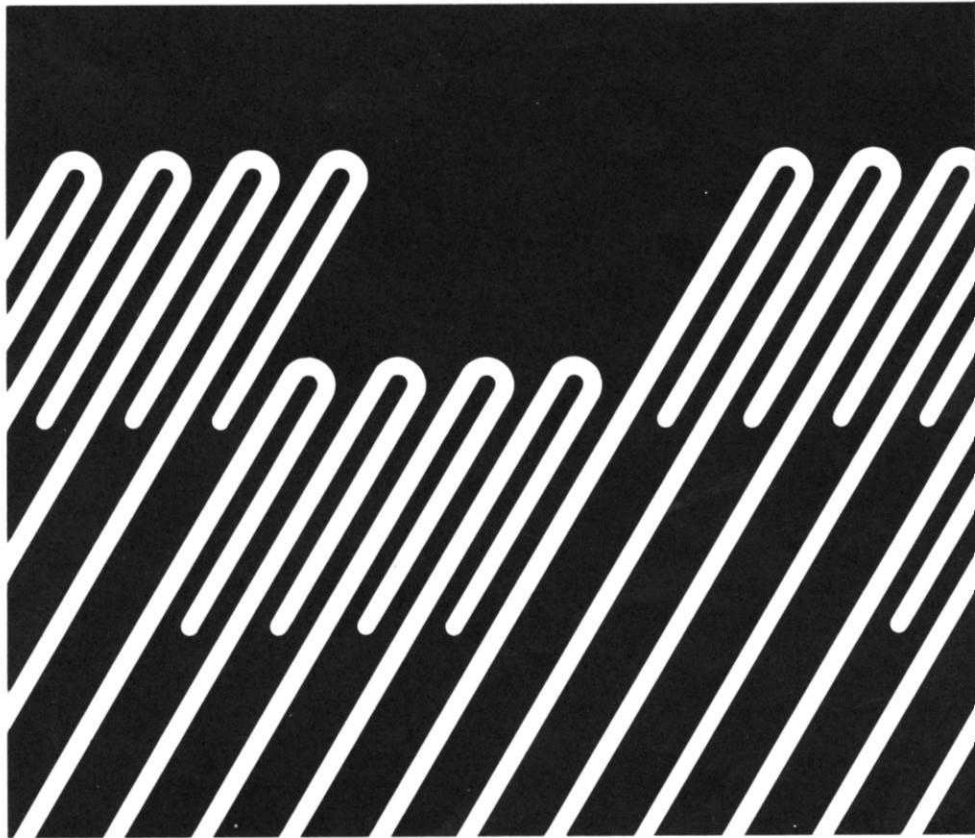


brother®

# HOW TO USE THE MOTOR DRIVE UNIT

KE-100

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This appliance is for home use.

## “IMPORTANT SAFETY INSTRUCTIONS”

“When using an electrical appliance, basic safety precautions should always be followed, including the following:”

“Read all instructions before using (this appliance).”

**“DANGER** - To reduce the risk of electric shock:”

1. “An appliance should never be left unattended when plugged in. Always unplug this appliance from the electric outlet immediately after using and before cleaning, servicing or changing mechanical parts or accessories.”

**“WARNING** - To reduce the risk of burns, fire, electric shock, or injury to persons.”

1. “Do not allow to be used as a toy. Close attention is necessary when this appliance is used by or near children.”  
2. “Use this appliance only for its intended use as described in this manual. Use only attachments recommended by the manufacturer as contained in this manual.”

3. “Never operate this appliance if it has a damaged cord or plug, it is not working properly, if it has been dropped or damaged, or dropped into water. Return the appliance to the nearest authorized dealer or service center for examination, repair, electrical or mechanical adjustment.”

4. “Never operate the appliance with the air openings blocked. Keep the air openings free of lint, hair, loose clothes and the like.”

5. “Never drop or insert any object into any opening.”

6. “Do not use outdoors.”

7. “Do not operate where aerosol (spray) products are being used or where oxygen is being administered.”

8. “To disconnect, turn all controls to the off (“O”) position, then remove plug from outlet.”

9. “Do not unplug by pulling on cord. To unplug, grasp the plug, not the cord.”

10. “Do not remove cover, no user serviceable parts inside. Refer servicing to qualified service personnel.”

## “SAVE THESE INSTRUCTIONS”


### FOR USERS IN THE UK, EIRE, MALTA AND CYPRUS ONLY.

If this appliance is fitted with a 3 pin non rewirable BS plug then please read the following.

#### IMPORTANT

If the available socket outlet is not suitable for the plug supplied with this equipment, it should be cut off and an appropriate three pin plug fitted. With alternative plugs an approved fuse must be fitted in the plug.

#### NOTE

The plug severed from the main lead must be destroyed as a plug with bare flexible cord is hazardous if engaged in a live socket outlet. In the event of replacing the plug fuse, use a fuse approved by ASTA to BS 1362, i.e. carrying the  mark, rating as marked on plug.

Always replace the fuse cover, never use plugs with the fuse cover omitted.

#### WARNING

**DO NOT CONNECT EITHER WIRE TO THE EARTH TERMINAL WHICH IS MARKED WITH THE LETTER ‘E’, BY THE EARTH SYMBOL  $\perp$  OR COLOURED GREEN OR YELLOW.**

The wires in this mains lead are coloured in accordance with the following code:

Blue	Neutral
Brown	Live

As the colours of the wiring in the main lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows.

The wire which is coloured blue must be connected to the terminal which is marked with the letter ‘N’ or coloured black or blue.  
The wire which is coloured brown must be connected to the terminal which is marked with the letter ‘L’ or coloured red or brown.

**WHEN USING A B.S. 1363 FUSED PLUG A 3 AMP. FUSE MUST BE FITTED.**

If the terminals of the plug are unmarked consult a qualified electrician before use.

### FOR USERS IN U.S.A. ONLY.

This appliance has a polarized plug (one blade wider than the other). To reduce the risk of electric shock, this plug is intended to fit in a polarized outlet only one way. If the plug does not fit fully in the outlet, reverse the plug. If it still does not fit, contact a qualified electrician to install the proper outlet. Do not modify the plug in any way.

# Contents

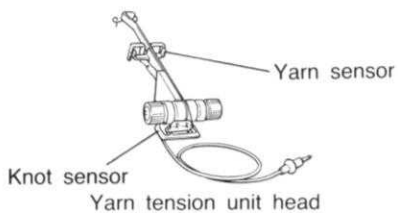
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# Names of Parts

Electric motor driving unit consists of the following parts.



Motor stop sensor  
for over load



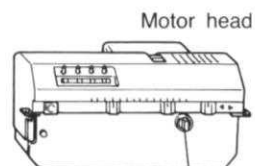
Yarn sensor  
Knot sensor  
Yarn tension unit head



Knot Sensor

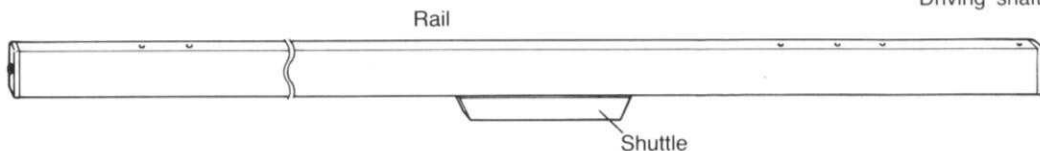


Belt cover



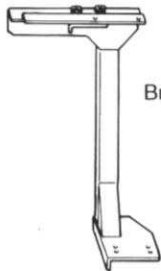
Motor head

Driving shaft



Rail

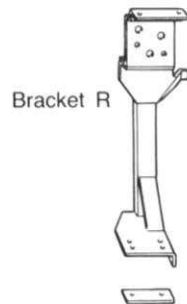
Shuttle



Bracket L



Coupler



Bracket R



Joint



Fastening plate

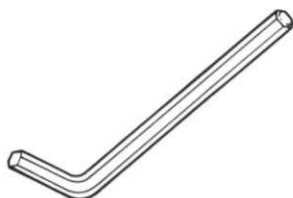


Tension rod stabilizer



Fastening plate

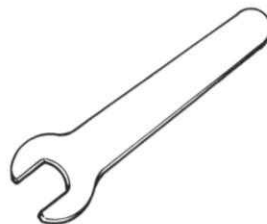
## Tools



Hexagonal  
bar wrench



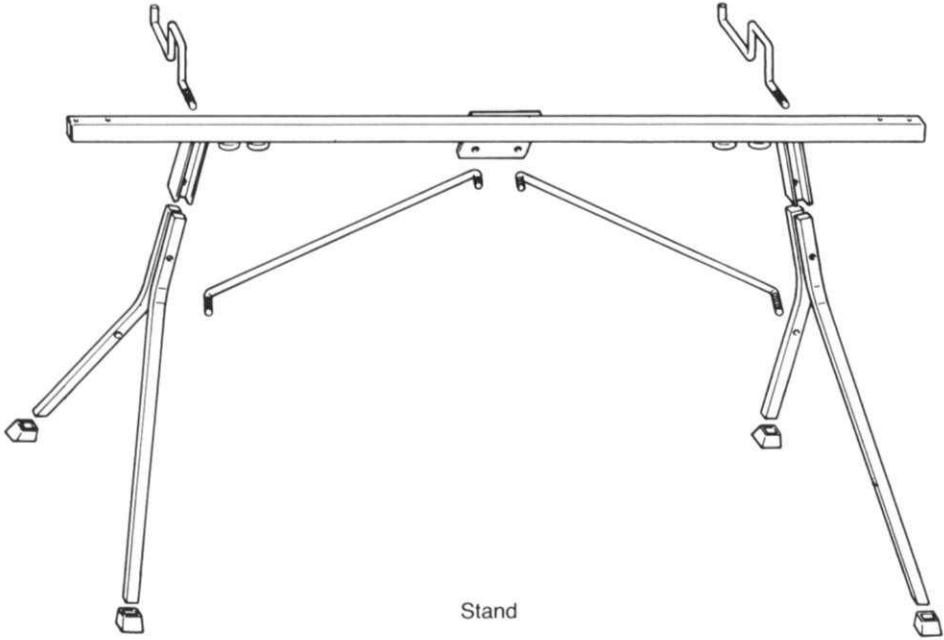
Cord binder



Wrench



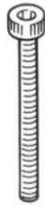
Cord hook



Washer A  
(10 pcs.)



Bolt A  
(7 pcs.)



Bolt B  
(4 pcs.)



Screw C for joint  
(2 pcs.)



Screw D for Belt Cover  
(1 pc.)



Washer B  
(6 pcs.)



Nut B  
(12 pcs.)

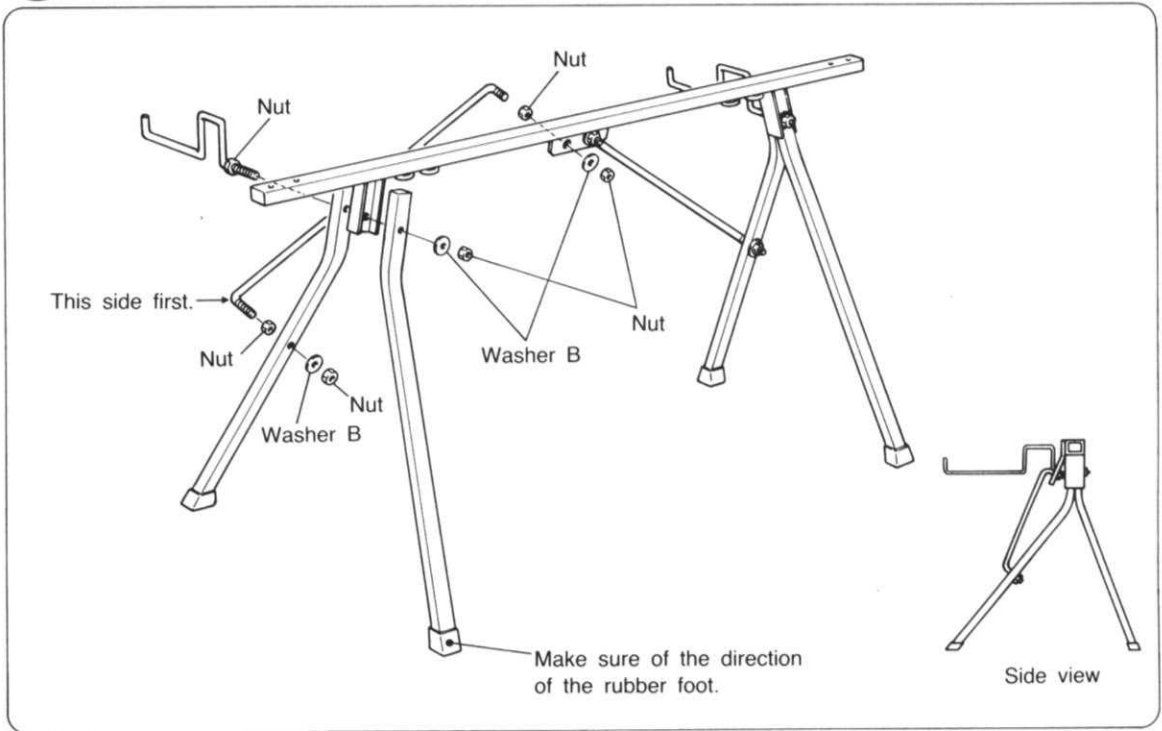


Screw F for Motor head  
(1 pc.)

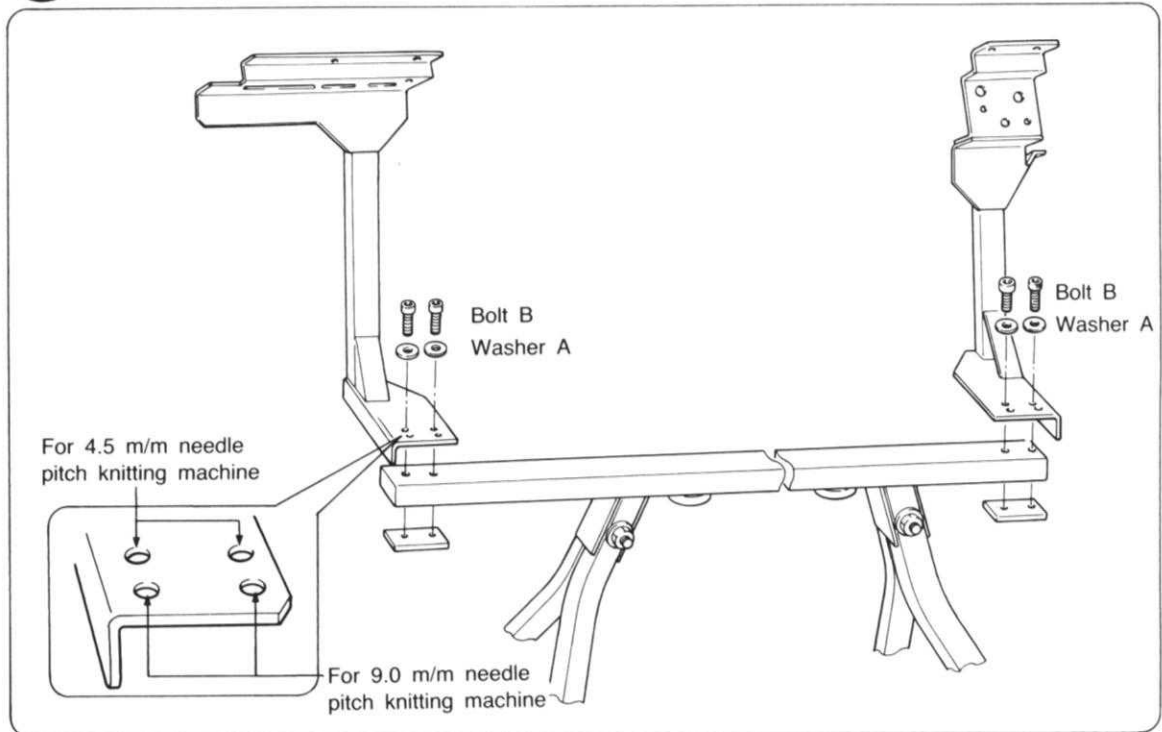
Nut and washer for stand

# How to Assemble the Motor Driving Unit

## 1 Assembling the stand

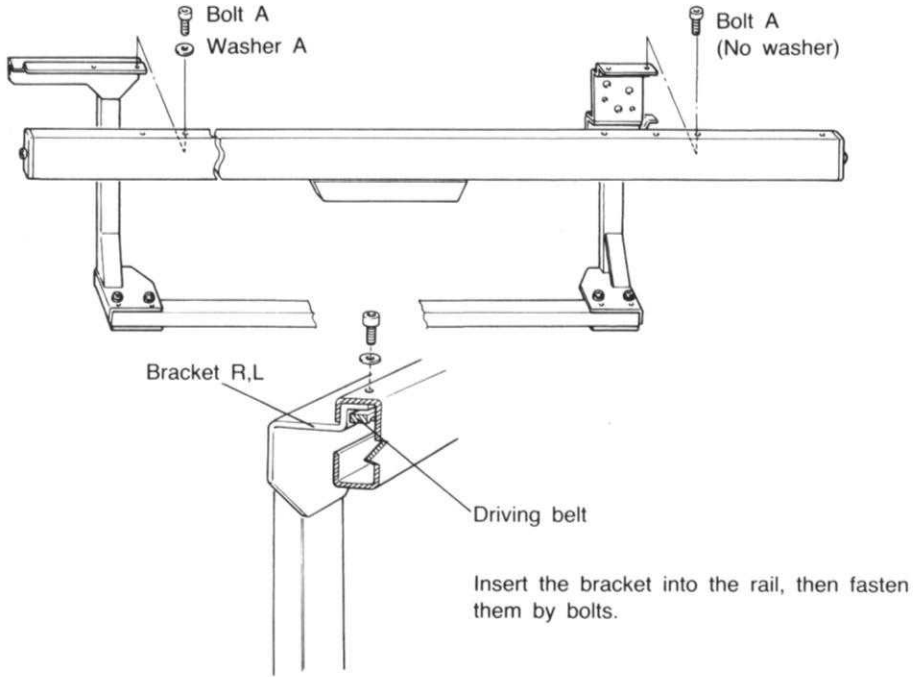


## 2 Assembling the brackets



### 3

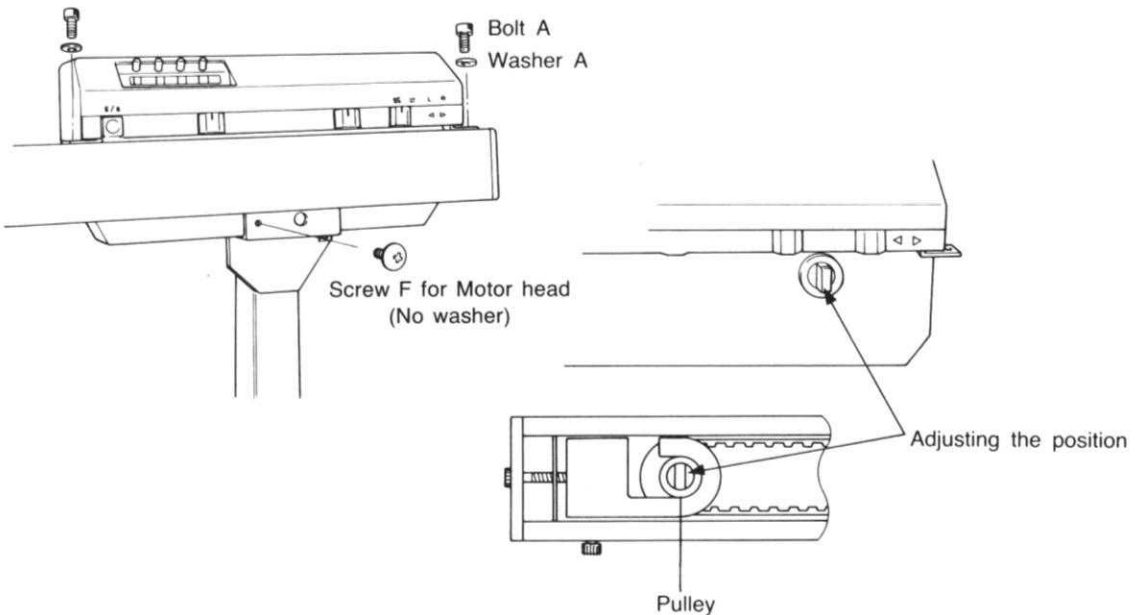
#### Assembling the rail



### 4

#### Assembling the motor head

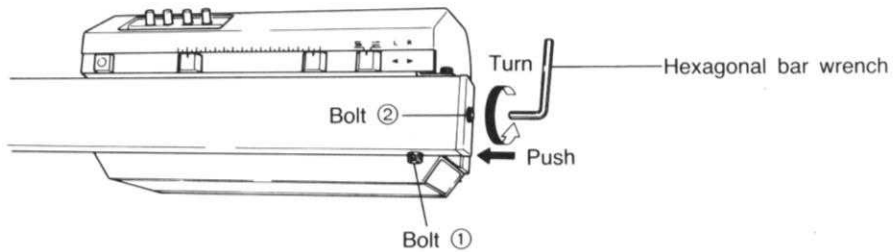
Insert the driving shaft into the hole of pulley by adjusting the position and fasten by bolts.



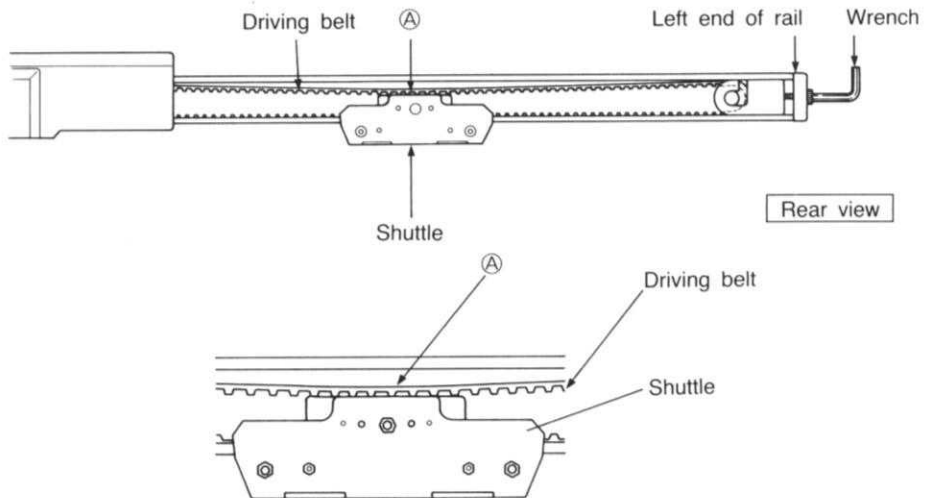
# 5

## Adjusting the tension of driving belt

- 1) Release the safety lock for transportation.
  - ① Loosen the bolt ① by turning it 2~3 revolutions. Then while pushing the plastic plate to the direction of arrow so as not to remove it from the rail, turn the bolt ② counterclockwise by 3 revolutions.
  - ② Push both plastic plate and bolt ②, and fasten the bolt ① by the wrench.
  - ③ Turn the bolt ② clockwise by 2 revolutions.



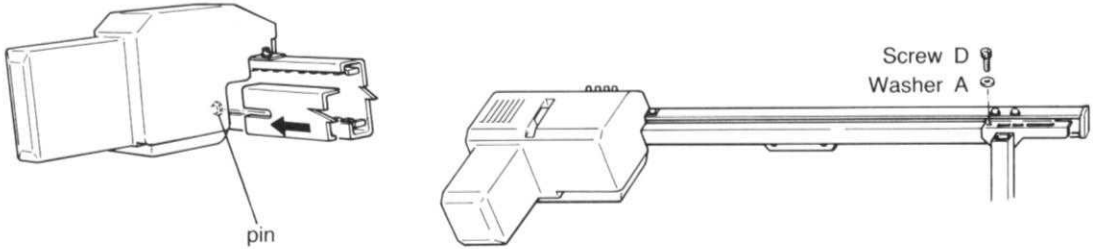
- 2) Adjust the tension of driving belt.
  - ① Place the shuttle at the center of rail. Loosen the bolt on the opposite side of the motor head by the wrench until the belt touches the upper part of the shuttle.
  - ② Then turn the bolt clockwise by 3.5 revolutions.





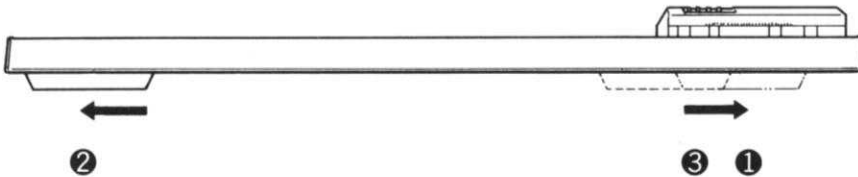
## 6 Assembling the belt cover

Insert the belt cover by adjusting the pin and groove of the belt cover, and fasten other end by the bolt.

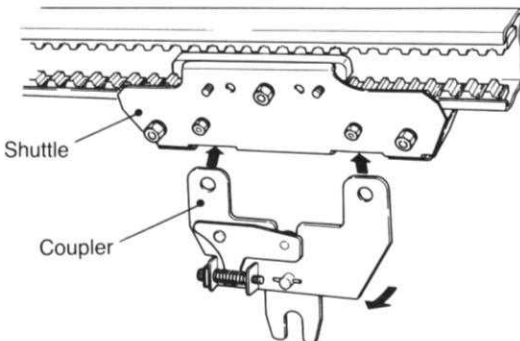


## 7 Initial setting of the operation range sensor which is inside of the motor head (You have to do this setting before operating the motor driving unit.)

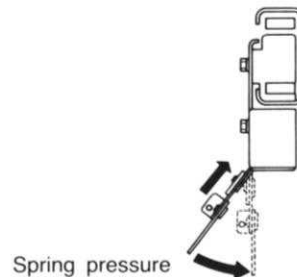
- 1 Move the shuttle to the right end by hand until it will stop.
- 2 Then move it to the left end until it will stop.
- 3 Return the shuttle to the right end so the operation range sensor will be set correctly.



## 8 Assembling the coupler



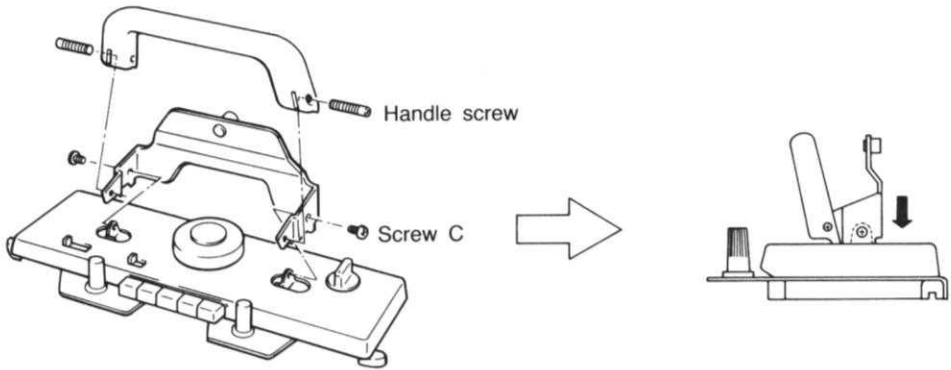
By tilting the coupler, insert it into the slots of the shuttle. The coupler will be straight to the shuttle by the spring after assembling.



**9** Assembling the joint by following the instructions according to the model you are using

**(A)** Standard models except the models mentioned below

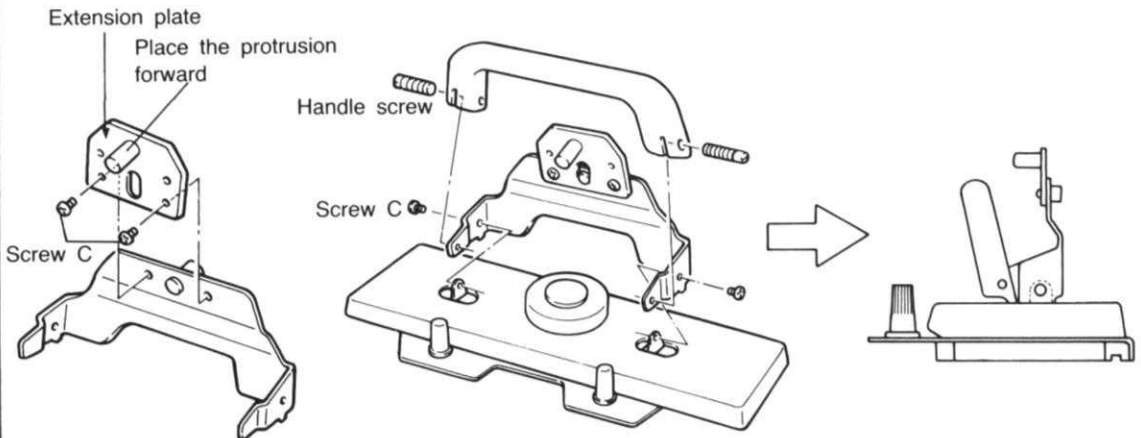
- 1 Remove two screws to take off the carriage handle.
- 2 Put the joint to the same place where the carriage handle was by the screw C (2 pcs.).
- 3 Put the carriage handle to the joint by the handle screws.



**(B)** For the KH-230

The EXTENSION PLATE is additionally required and this is an OPTIONAL PARTS.

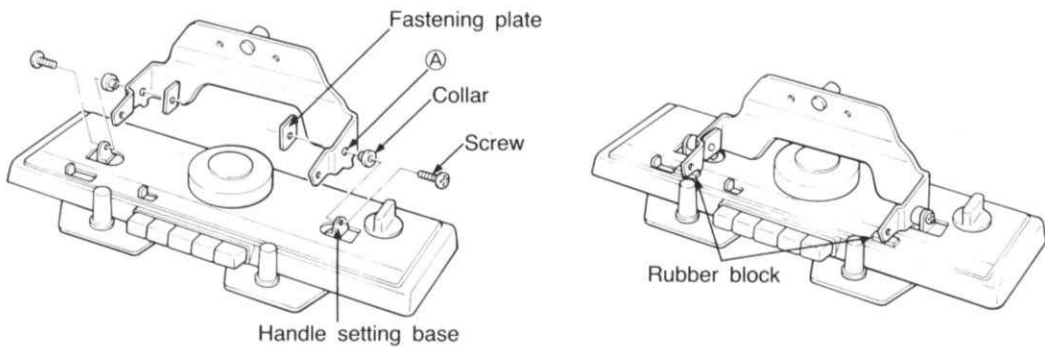
- 1 Put the extension plate to the joint by two screws.  
(Lower two holes are used.)
- 2 Remove two screws to take off the carriage handle.
- 3 Put the joint to the same place where the carriage handle was by the screw C (2 pcs.).
- 4 Put the carriage handle to the joint by the handle screws.



**© For the KH-830, KH-835 and KH-836**

The JOINT ASSEMBLING KIT is additionally required and this is an OPTIONAL PARTS.

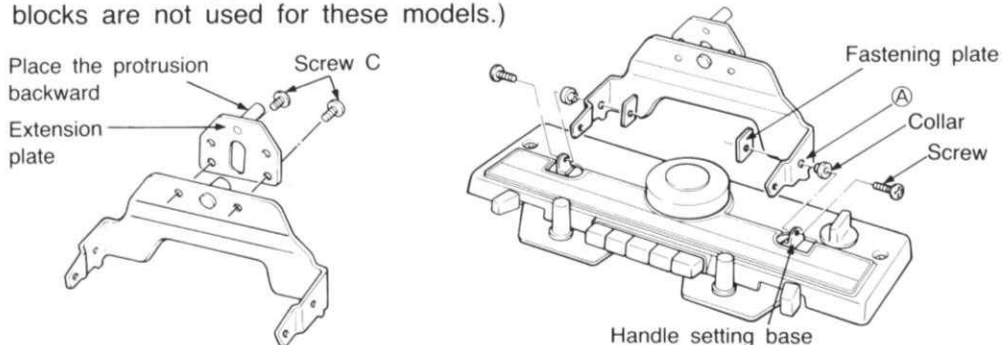
- ① Remove two screws to take off the carriage handle.  
(This handle can not be attached to the joint.)
- ② Insert the collar to the hole (A) from out side.
- ③ Place the joint with collar in between the handle setting bases.
- ④ Insert the screw into the collar and screw it. If you push down the joint, it is easy to insert the screw.
- ⑤ Set the fastening plate to the screw from inside, then screw up tightly.
- ⑥ Place the rubber block under the joint.



**© For the KH-120 and KH-710**

The EXTENSION PLATE and JOINT ASSEMBLING KIT are additionally required and these sets are OPTIONAL PARTS.

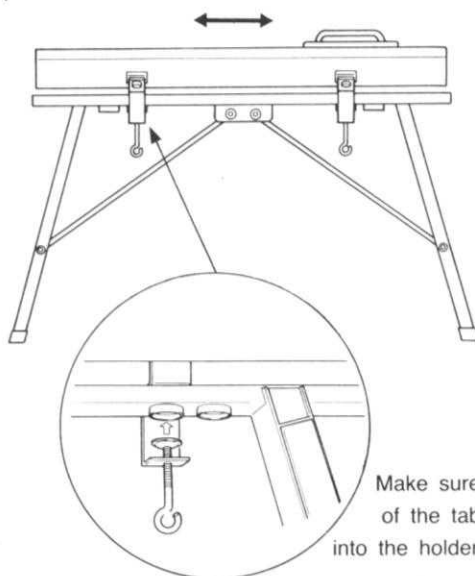
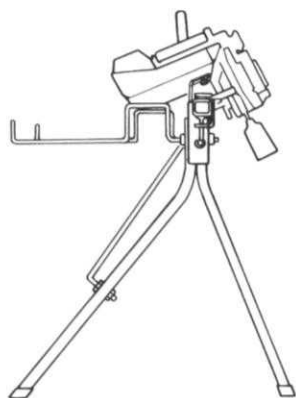
- ① Remove two screws to take off the carriage handle.  
(This handle can not be attached to the joint.)
- ② Put the extension plate to the reverse side of the joint, then fasten it with two screws by using lower two holes.
- ③ Insert the collar to the hole (A) from out side.
- ④ Place the joint with collar in between the handle setting bases.
- ⑤ Insert the screw into the collar and screw it. If you push down the joint, it is easy to insert the screw.
- ⑥ Set the fastening plate to the screw from inside, then screw up tightly. (The rubber blocks are not used for these models.)



## 10 Installing the knitting machine

Always use the table clamps for KR to set the knitting machine to the stand regardless with or without use of ribbing attachment.

\* If you do not have ribbing attachment, you have to get the table clamps for your machine. The table clamps are available as an OPTIONAL PARTS.



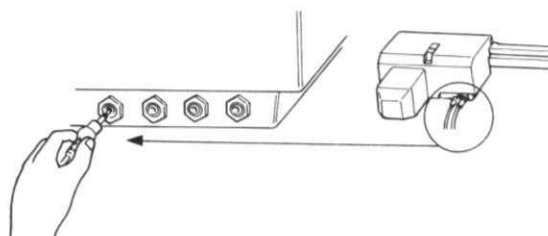
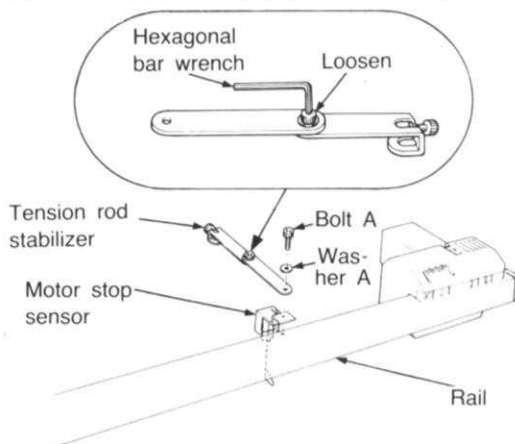
Make sure that the disc of the table clamp gets into the holder of the stand.

## 11 Assembling the motor stop sensor and tension rod stabilizer

1 Loosen the screw.

2 Put the motor stop sensor together with the tension rod stabilizer by the bolt A.

3 Insert the plug of motor stop sensor into the left end connector.

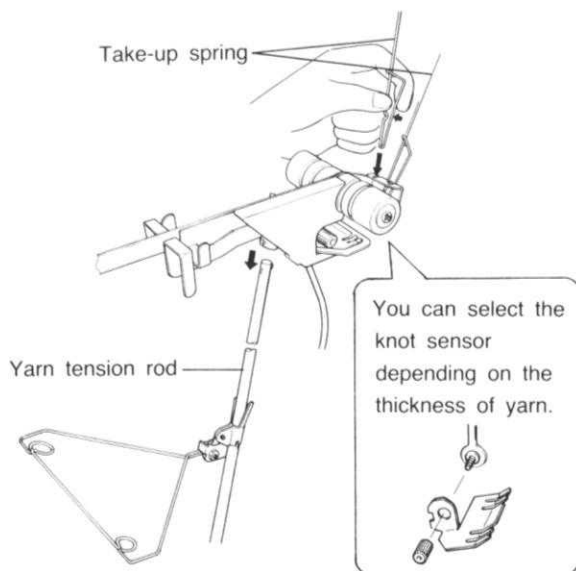
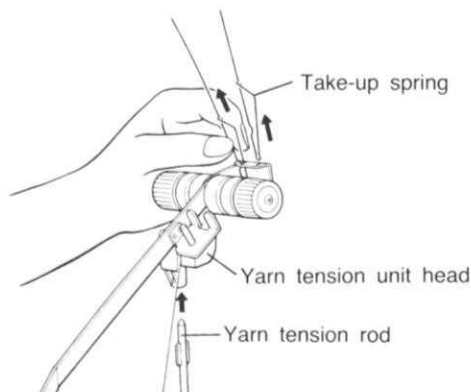


## 12 Assembling the yarn tension unit

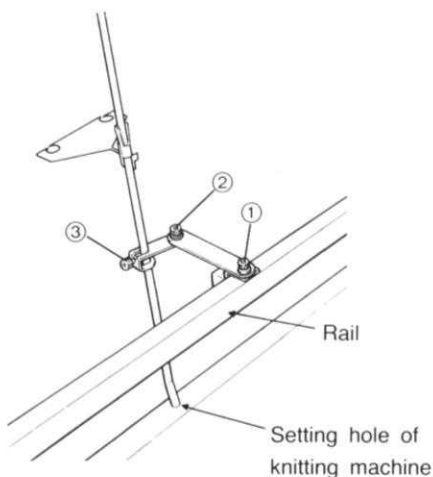
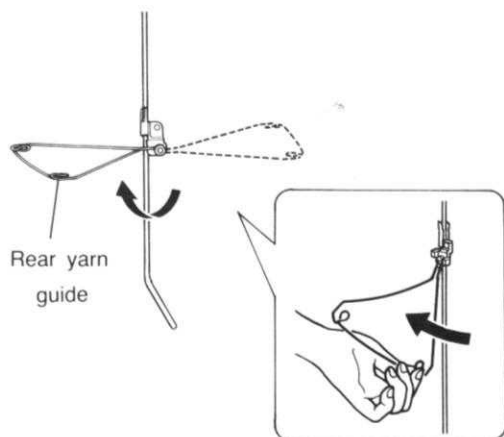
You can use the ordinary yarn tension unit for the motor drive unit. When you have the machine except KH-230, you are advised to use the yarn tension unit head of KE-100. When you have KH-230, you need to purchase take-up spring to use yarn tension unit head of KE-100.

### • How to change the yarn tension unit head

- 1 Remove the yarn tension unit head of the knitter from the rod and pull out the take-up springs.
- 2 Put the take-up springs into the yarn tension unit head of KE-100 and insert it to the rod reversely.

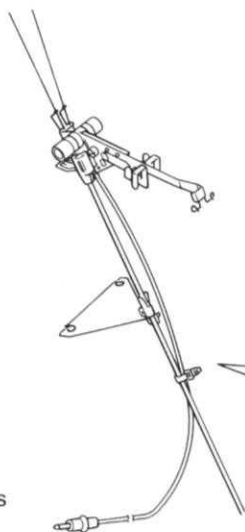


- 3 Turn the rear yarn guide to the opposite side.
- 4 Pass the yarn tension rod through the stabilizer and set it to the machine. Then, fasten the bolt in order of the illustration.



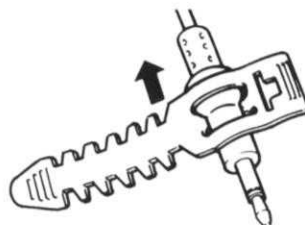
## 13 Inserting the plug

②

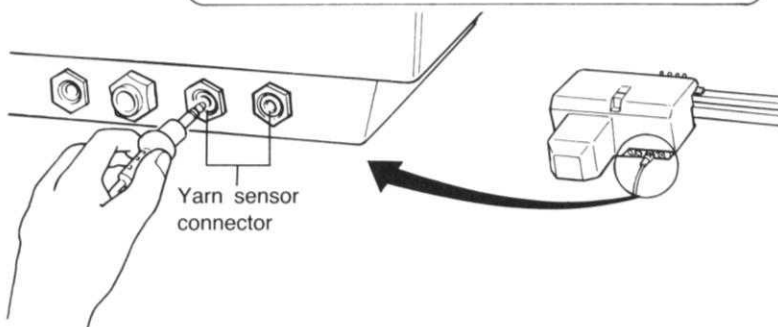


To the connectors

Pass the yarn sensor cord through the cord binder and tie the cord to the yarn tension rod by the binder.



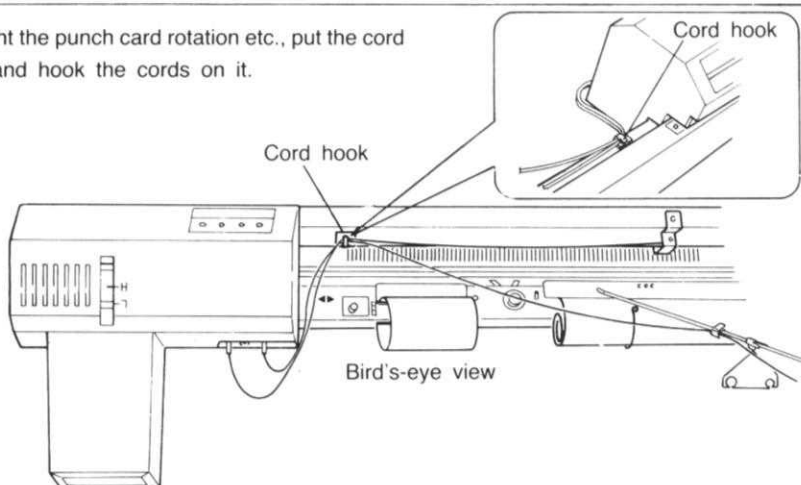
③ Insert the plug to either of right two connectors.



Yarn sensor connector

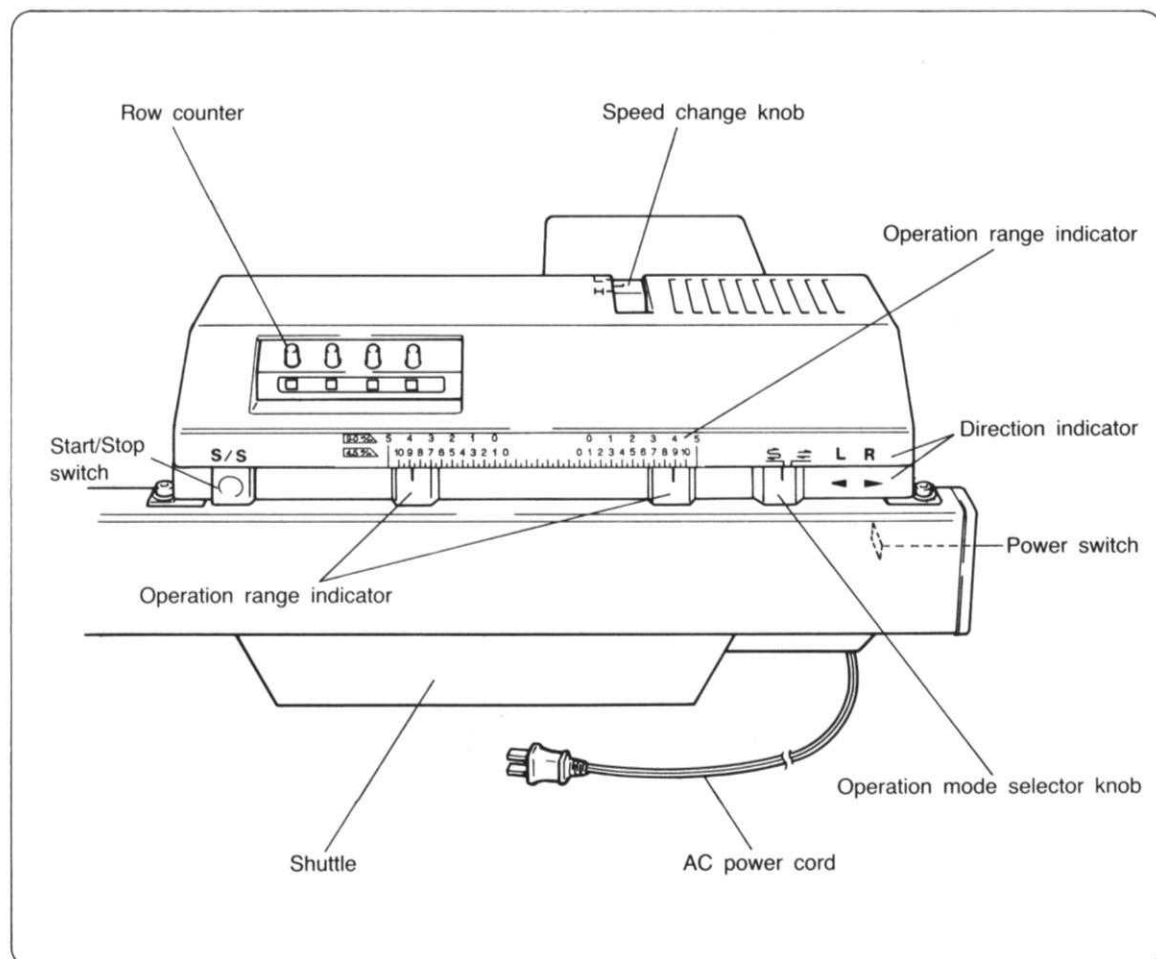
## 14 How to use the cord hook

If the various cords prevent the punch card rotation etc., put the cord hook to the belt cover and hook the cords on it.



# Function of Each Part

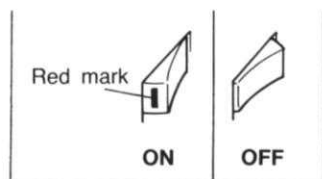
## 1. Name of Part







## 2. Explanation of Each Part

### ① Electric power

- Use the correct power indicated in the label, which is beside the power switch on the motor head.
- Put off the power switch before inserting the plug of AC cord into the inlet.
- Power switch ON/OFF.



② **Direction indicator**

NORMAL	
	The shuttle will move to the direction indicated by the lamp.
ABNORMAL	
	If both L and R lamps are flashing, it is indicating that the shuttle has been stopped by the over load. Clear the causes and place the carriage on the right side of the knitting work and restart. (Push S/S switch (Foot switch), L lamp light. Then push S/S switch (Foot switch) again so the shuttle starts the operation.)
	If L lamp is flashing, it is indicating that the yarn is run out or the speed change knob is not shifted correctly. Thread the yarn or shift the knob correctly then push S/S switch (Foot Switch).
	If the L and R lamps light alternately, it is indicating that the shuttle has been stopped by the row counter. If you want to continue the operation, set the number on the row counter and push S/S switch (Foot Switch) twice.

\* Foot Switch (See P.15)

③ **Speed change knob**

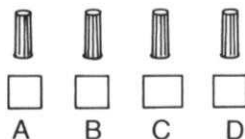
You can select the operation speed high (H) or low (L) by speed change knob.  
Do not shift the change knob when the motor runs.  
It is easy to shift the change knob if you move the shuttle by hand.





#### ④ Setting the row counter

If you set the row number you want to knit, the motor will stop automatically after knitting the number of row previously set. Set the number from knob (A), then (B), (C) and (D). When setting the knob (B), if the knob (A) is turned by turning the knob (B), set the knob (B) by turning it opposite direction.



#### Example

0150 → Knit 150 rows, then stop.

0000 → Knit 10000 rows, then stop.

\* Set the row counter while the shuttle stops at the out side of work.

Do not touch the knob while the shuttle runs.

\* If the shuttle stops at the dead points (around 15 cm from the turning point), the knobs of row counter would not turn when setting the number.

#### ⑤ Setting of th operation range

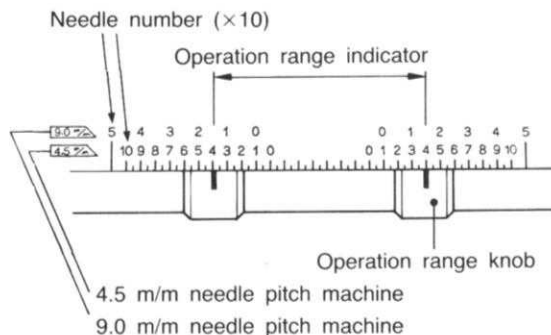
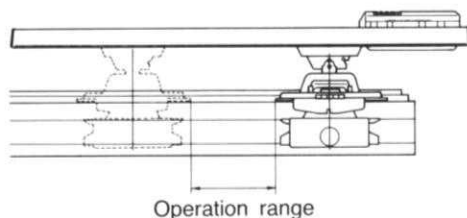
Operation range of the shuttle can be adjusted by setting the operation range knob.

① Bring forward the required number of needles from A to B position, then read the number of both end needles in B position by the needle position indicator on the needle bed.

② Set the right and left operation range knobs to the same numbers of the end needles. Check the operation range before starting the actual knitting and adjust if necessary.

③ If the actual operation range is different from the setting of the operation range knobs very much, first check if the knitting machine is set on the correct position of the stand.



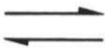
If it is correct, there is a possibility that the operation range sensors are slipping their correct position, reset the sensors by following the instructions on page 7.



\* If you use the ribbing attachment, set the operation range less than 190 needles (4.5 m/m) or 100 needles (9.0 m/m).

\* Always use the extension rails.

⑥ Operation mode selector knob and Start/Stop switch (Foot switch)

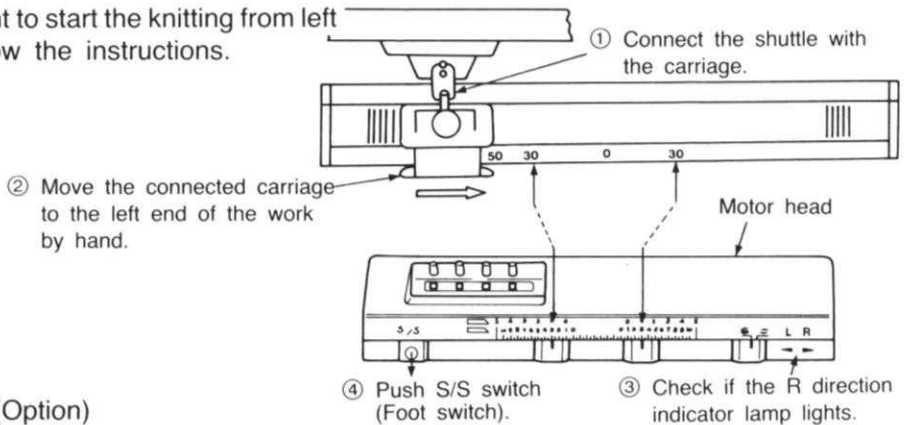
Operation mode Selector knob	<input type="checkbox"/> Start/stop switch (  Foot switch )
Continuous operation 	Push S/S switch (Foot switch), the shuttle will move continuously. Push S/S switch (Foot switch) again, the shuttle will stop the operation.
Intermittent operation 	While pushing the S/S switch (Foot switch), the shuttle will move and stop at the end of operation range which is previously set. If you release the S/S switch (Foot switch) before reaching to the end of range, the shuttle immediately stops there.

\* Foot switch is available as an OPTIONAL PART.

When pushing S/S switch (Foot switch) first time after putting on the power switch .....

Whenever putting on the power switch, since the shuttle will be set to start from right to left direction, make sure that the shuttle is on the right side and the carriage is off the knitting work. (If the carriage is on the knitting work or you move the shuttle over the operation range by hand, when pushing S/S switch (Foot switch), the shuttle will move opposite direction and be stopped by over load.)

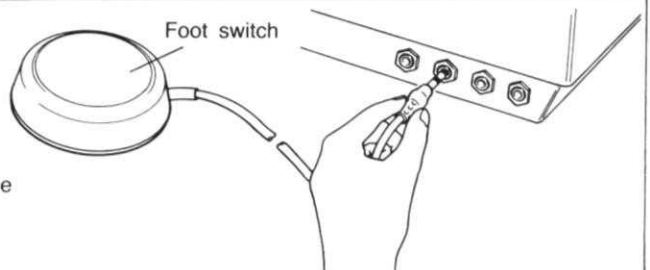
\* If you want to start the knitting from left side, follow the instructions.



● Foot switch (Option)

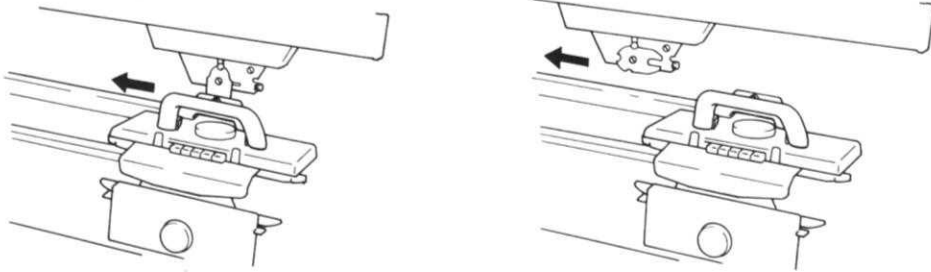
The function of the foot switch is the same as one for the S/S switch.

Insert the plug for the foot switch into the second connector from the left at the reverse side of the motor head.



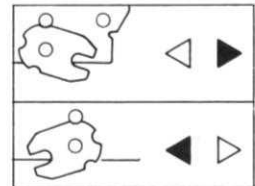
## ⑦ Coupler

When the carriage jams (over load), the coupler releases the carriage to keep the machine from damage and the motor will be stopped by the motor stop sensor.



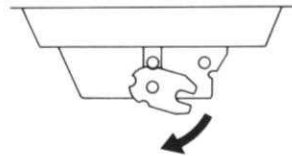
### NOTE:

In case of the right figures, the row counter has already counted one more row (next row), therefore you have to adjust the number before re-start knitting.



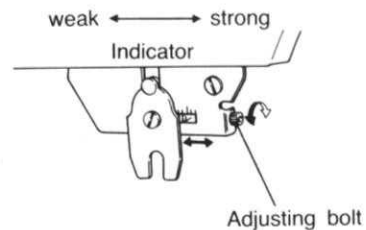
### • When disconnect the carriage

Clear the causes, turn the coupler to normal position and connect with carriage. Then continue the operation.



### • Adjusting the coupling torque

If you wish to change the coupling torque, turn the bolt beside the coupler clockwise (to be stronger) or counterclockwise (to be weaker).



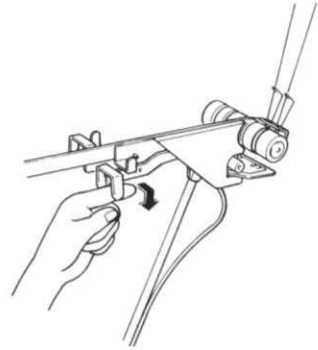
There is another electrical safety system for over load. Although the coupler has been connected with the carriage, the motor will stop by the above system. If the operation range is different from the setting, reset the operation range sensor by following the instructions on page 6.

## ⑧ Yarn sensor

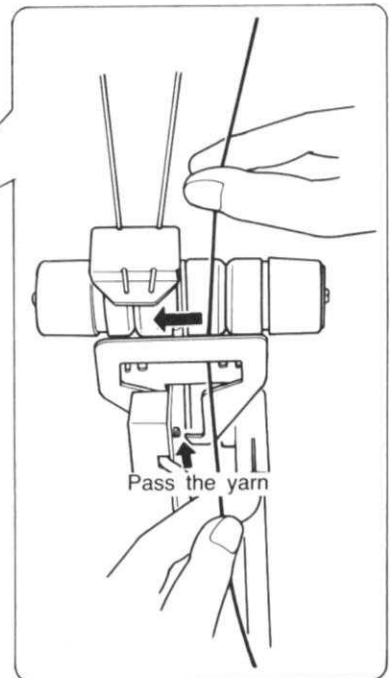
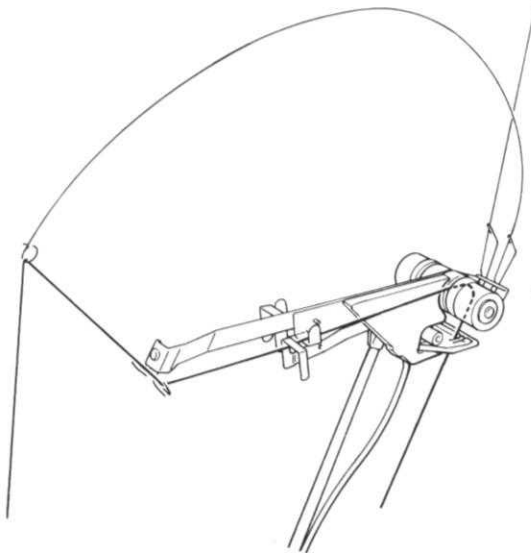
When running out of yarn sensor works and stops the operation.

### How to thread

- 1 Remove the yarn sensor lever from the pin.  
(You must put the sensor lever which is not used on the pin.)



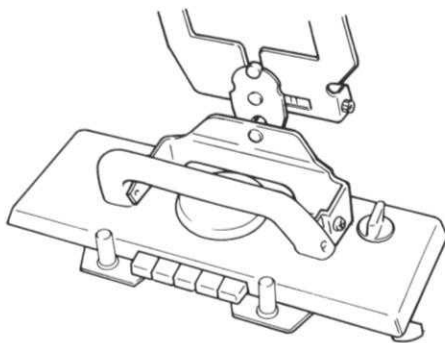
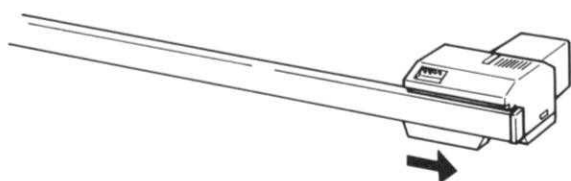
- 2 Thread yarn as illustrated.  
(Make sure that the knot sensor is down.)



# Operation Step

## 1 Preparation for knitting

- Prepare the needles according to the knitting width, read the needle number of both ends and set the operation range by the knobs.
- Cast-on, knit several rows of waste knitting. If your knit with punch card, select the needles and knit two rows with punch card. Then place the carriage at the right side of needle bed.
- Select the speed change position H/L by the knob.
- Bring the shuttle to the right side and connect the coupler with the carriage.



## 2 Preparation for operating

- Put on the power switch. (The left direction indicator lamp lights, in other case, check up the row counter and yarn sensor.)
- Set the row counter.
- Set the knitting mode.

## 3 Operation

- Push S/S switch (Foot switch) and start the operation.

# Warning

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- Please do not touch to the moving parts such as the shuttle, driving belt, etc. During the operation if you need to touch them, turn off the power switch always.
- Before starting operation, oil sliding parts and moving parts of knitting machine.
- There are vents under the motor head for cooling, therefore do not put any goods under the motor head.
- Do not keep and/or operate the motor in a very hot or cold room.
- If you have the trouble with the motor driving unit, turn off the power switch, unplug the main power. Ask for the repair to the dealer. Please do not disassemble the motor head.

# When you use Double bed colour changer

- Purchase the optional yarn sensor set.

## Yarn sensor set



Yarn sensor



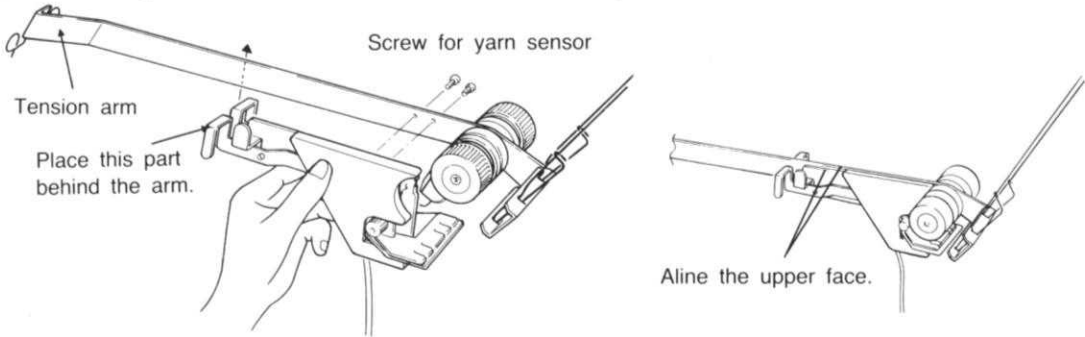
Knot Sensor



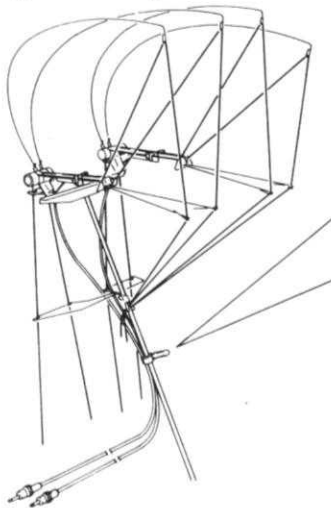
Screw for yarn sensor  
(2 pcs.)

- ① Take off the yarn sensor from the yarn tension unit head of KE-100.  
Put the sensor to the one of the head of colour changer.

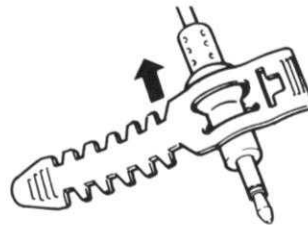
- ② Attach the yarn sensor set to another head of colour chager.



- ③ Insert both plugs into the right two connectors.



Tie the sensor cords to the yarn tension rod by the binder.



Pass either of two yarn sensor cord through the cord binder.

To the connectors

