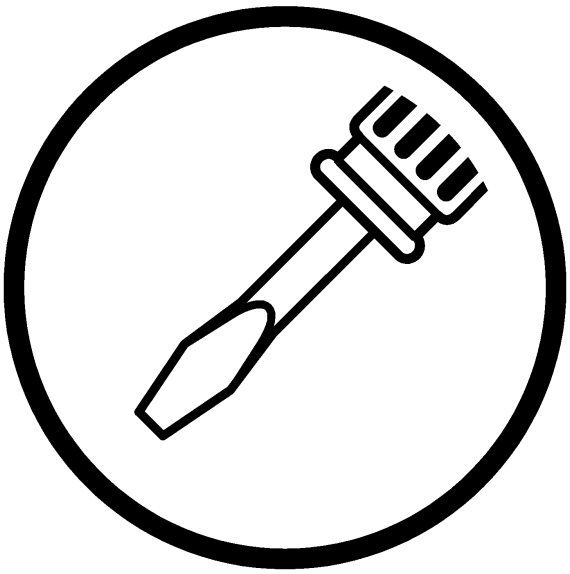
Service Manual

BAS-6200,6220,6150
BAS-620,622,615

Please read through this manual before adjustment of the machine.

AUTOMATIC LOCKSTITCH POCKET WELT SEWER
AUTOMATIC LOCKSTITCH SLANT POCKET WELT SEWER



brother

Thank you very much for buying a BROTHER sewing machine. Before using your new machine, please read the safety instructions below and explanations given in the instruction manual.

The nature of industrial sewing machine requires operators to be always exposed to the hazard to themselves, because they have to work very close to moving parts such as the needle and thread take-up lever. Prior to using, be sure to be well informed of instructions for safe and correct operation of the machine by experts and/or instructors.

SAFETY INSTRUCTIONS

1 Safety indications and their meanings

This instruction manual and the indications & symbols labeled on the machine are provided to ensure safe operation of this machine and to prevent hazards from an operator and/or other people. The meanings of these indications and symbols are given below.

Indications

⚠DANGER	The instructions following this term indicate situations where negligence of the instructions will almost certainly result in death or severe injury.
⚠CAUTION	The instructions following this term indicate situations where negligence of the instructions to operation could cause hazards to the material and body.

Symbols

 ····· This symbol (△) indicates what an operator must be careful of.
The picture inside the triangle indicates the nature of the caution that must be observed. (For example, the symbol on the left means "beware of injury".)

 ····· This symbol (⃠) indicates what you must not do.

 ····· This symbol (●) indicates what you must do.
The picture inside the circle indicates what must be done. (For example, the symbol on the left means "you must set the ground connection".)

DANGER

Wait at least 5 minutes after turning off the power switch and disconnecting the power cord from the wall outlet before opening the face plate of the control box. Touching areas where high voltages are presant can result in severe injury.

CAUTION

Requirements for environment

- Use the machine in an area free of the impact from sources of strong electrical noise such as high-frequency welders. Sources of strong electrical noise may cause problems with correct operation of the machine.
- Any fluctuations in the power supply voltage should be within ±10% of the rated voltage for the machine. Voltage fluctuations greater than this range may cause problems with correct operation of the machine.
- The power supply capacity should be greater than the requirements for electrical consumption of the machine. Insufficient power supply capacity may cause problems with correct operation of the machine.
- The air supply capacity should be greater than the requirements for air consumption of the machine. Insufficient air supply may cause problems with correct operation of the machine.
- The ambient temperature during use should be within the range from 5 C° to 35C° Temperature lower or higher than this range may cause problems with correct operation of the machine.
- The relative humidity in operation should be within the range from 45% to 85% and no dew formation should occur in any device. Excessive dry or humid environment and dew formation may cause problems with correct operation of the machine.
- Avoid exposure to direct sunlight in operation. Exposure to direct sunlight may cause problems with correct operation of the machine.
- When an electrical storm occurs, turn off the power and plug off the power cord. Lightening may cause problems with correct operation of the machine.
- Do not use the machine outdoors.

Installation

- Machine installation should be carried out only by a qualified technician.
- Contact your Brother dealer or a qualified electrician for any electrical wiring.
- The machine weighs 222.5kg(BAS-6200,6220) or 225kg(BAS-6150). The installation should be carried out by two persons or more.
- Do not plug in the power cord before the installation is completed. Unintended press on the foot switch may cause injury.
- Be sure to connect ground. Insecure grounding may cause problems with correct operation and a serious electrical shock.
- Be sure to wear protective goggles and gloves when handling lubricating oil or grease so that no oil or grease gets into your eyes or onto your skin. Do not eat or drink lubrication oil or grease in order not to have vomiting or diarrhea. Keep oil and grease out of the reach of children.
- Install the machine well apart from sources of strong electrical noise such as high-frequency welding equipment. Otherwise, incorrect machine operation may result.
- Place the leveling sheet on the sound floor and secure the machine with casters so that it will not move.

⚠ CAUTION

Sewing

The machine should be operated only by operators who have been trained for safety operation.

Do not let children access to the machine.

The machine should not be used for any other application than sewing.

Be sure to wear protective goggles when operating the machine. Otherwise, a broken needle may get in your eyes and cause injury.

Turn off the power on the following occasions. Otherwise, unintended press on the foot switch may cause injury.

- When replacing a needle
- When not operating the machine and leaving it unattended

Do not operate the machine where an aerosol product (air spray) is used or where oxygen is being administered.

Attach all safety devices before using the machine. Operation without safety device may cause injury.

Do not touch any of the moving parts nor press any objects against the machine in operation. Any touch or press may cause damage to the machine or injury to human body.

Do not put objects or a screwdriver in the exhaustion outlet or inside the machine. Accidental touch on an area with high voltage may cause electrical shock.

Do not damage, process, heat, and apply excessive force to the power cord or other wiring cords. Breakage of the power cord and other wiring cords may cause fire or electric shock.

Turn off the power switch when the control unit is subject to water or chemicals. Continuous operation of the control unit subjected to water or chemicals may cause fire or electrical shock.

Turn off the power switch when incorrect operation and abnormal sound or smell are noticed. Contact your Brother dealer or a qualified technician.

Contact your Brother dealer or a qualified technician when the machine is in trouble.

Cleaning

Turn off the power switch before cleaning. Unintended press on the foot switch may cause injury.

Disconnect the air hoses from the air supply and wait for the needle on the pressure gauge to drop to "0" before carrying out inspection, adjustment and repair of any parts which use the pneumatic equipment.

Be sure to wear protective goggles and gloves when handling lubricating oil or grease so that no oil or grease gets into your eyes or onto your skin. Do not eat or drink lubrication oil or grease in order not to have vomiting or diarrhea. Keep oil and grease out of the reach of children.

Maintenance and inspection

Be sure to turn off the power switch when the machine is raised. Unintended press on the foot switch may cause injury.

Turn off the power switch and pull off the plug by holding not of the cord but of the plug for the following occasions. Otherwise, unintended press on the foot switch may cause injury.

- maintenance, adjustment, and repairment
- replacement of consumable parts such as the rotary hook, knife, lamp, etc.

When adjustment has to be done with the power switch and air supply on, pay enough attention to safety. Detach the air tube of air source and set the pointer of the pressure gauge to [0] for inspection, adjustment, and repair of air using devices.

If safety devices are once detached, re-attach them to the original position. Make a check to confirm that they are in proper function.

Loss and others due to remodeling the machine are excluded from the scope of warranty.

Do not put scissors, needles, threads, tools on the table when the machine is set upright. Falling down of them may cause damage to the machine or injury to human body.

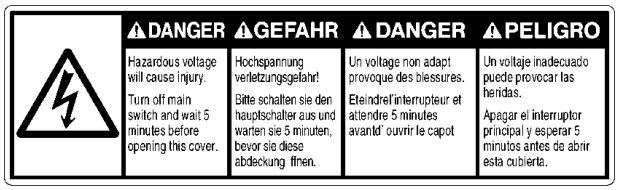
Ask your Brother dealer or a qualified technician for electrical maintenance and inspection.

3 Warning labels

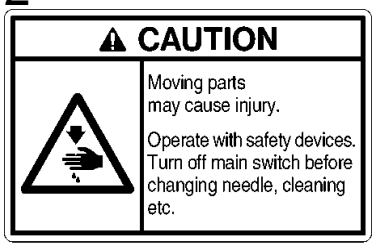
The following labels appear on the machine.

Please follow instruction described on the labels when using the machine. If labels have been removed or become illegible, contact your dealer.

1

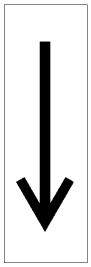


2



Safety devices: cover, take-up lever cover, guard bar

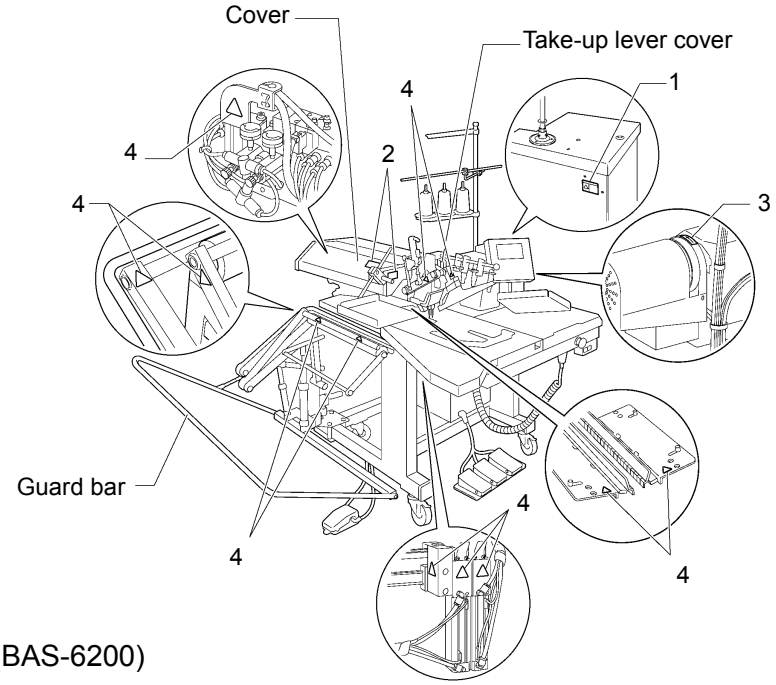
3



Direction of operation

4

Moving parts may cause injury.



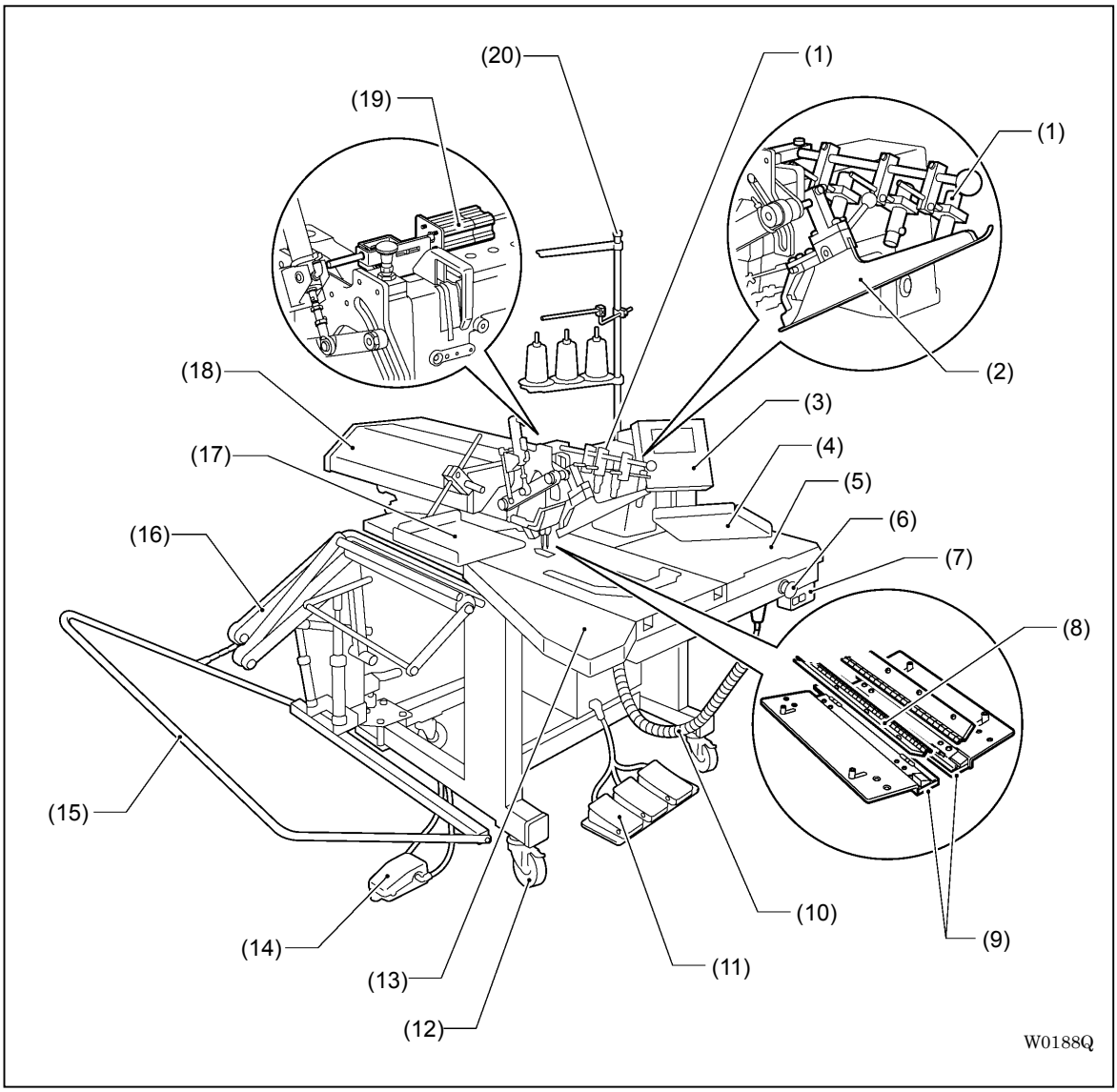
(BAS-6200)

W0293Q

CONTENTS

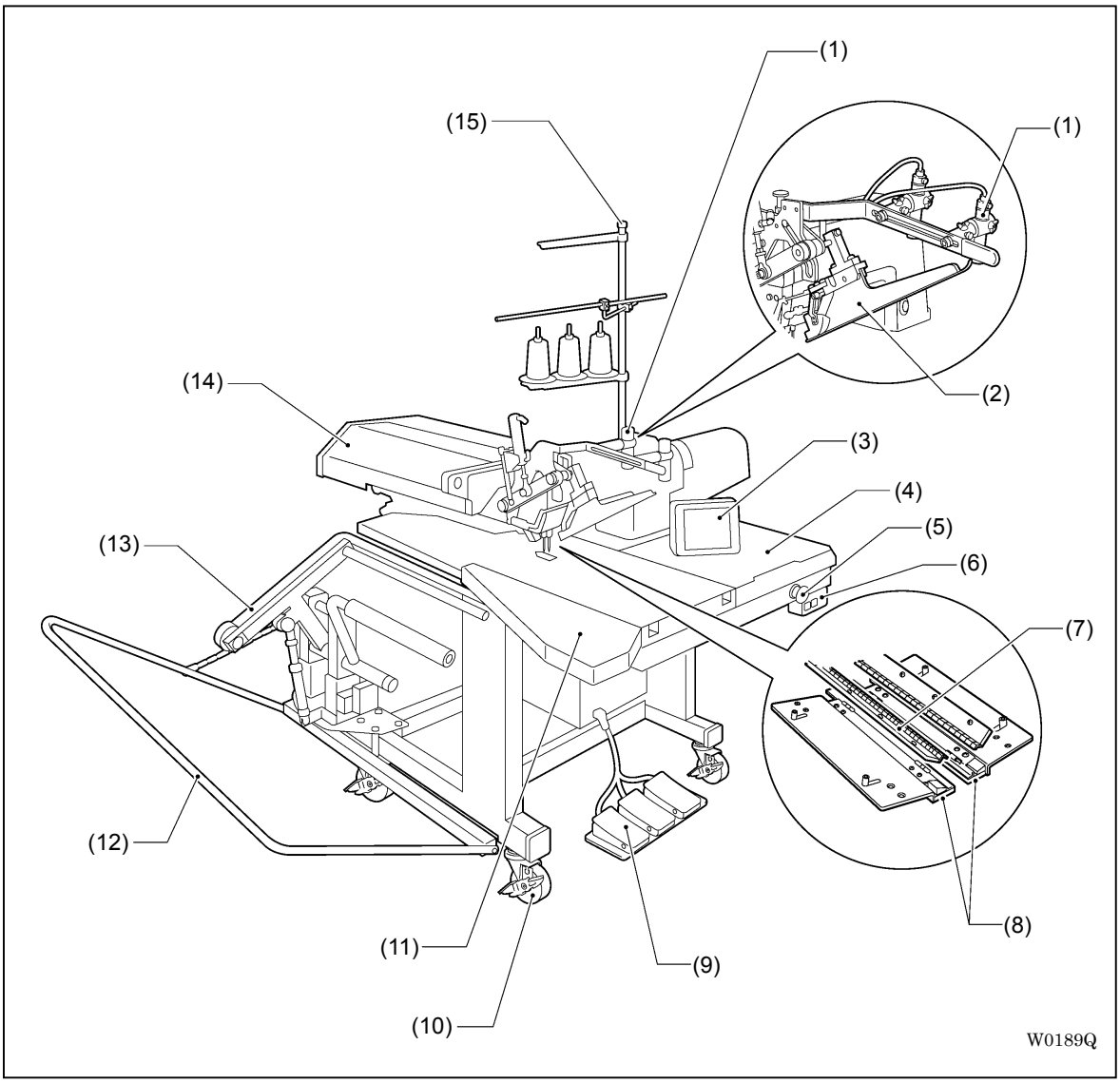
1. Part names

1-1.BAS-6200 (6220)



(1)	Marking light	(8)	Flap clamp (Flap specifications)	(15)	Guard bar (Option)
(2)	Binder	(9)	Carriage feed	(16)	Stacker (Option)
(3)	Operation panel	(10)	Air gun	(17)	Cloth receiver (Flap specifications)
(4)	Cloth supporter	(11)	3-pedal switch	(18)	Cover
(5)	Table R	(12)	Caster	(19)	Change needle bar cylinder (BAS-6220)
(6)	Emergency stop switch	(13)	Table L	(20)	Cotton stand
(7)	Power switch	(14)	Pedal (Stacker specifications)		

1-2.BAS-6150



(1)	Marking light	(6)	Power switch	(11)	Table L
(2)	Binder	(7)	Flap clamp (Flap specifications)	(12)	Guard bar (Option)
(3)	Control panel	(8)	Carriage feed	(13)	Stacker (Option)
(4)	Table R	(9)	3-pedal switch	(14)	Cover
(5)	Emergency stop switch	(10)	Caster	(15)	Cotton stand switch

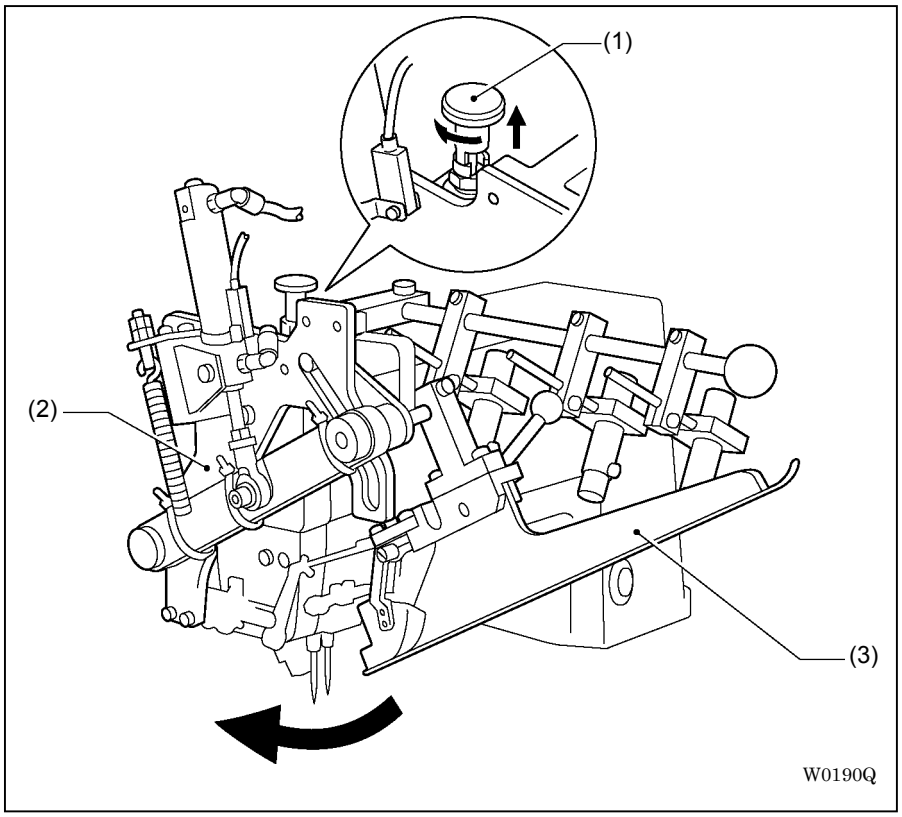
2. Before adjustment

Caution

Turn off the power before the operation. Otherwise, unintended press on the foot switch may cause injury. Detach the air tube of air source and set the pointer of the pressure gauge to [0] for inspection, adjustment, and repair of air using devices.

Do not put scissors, needles, threads, tools on the table when the machine is set upright. Falling down of them may cause damage to the machine or injury to human body.

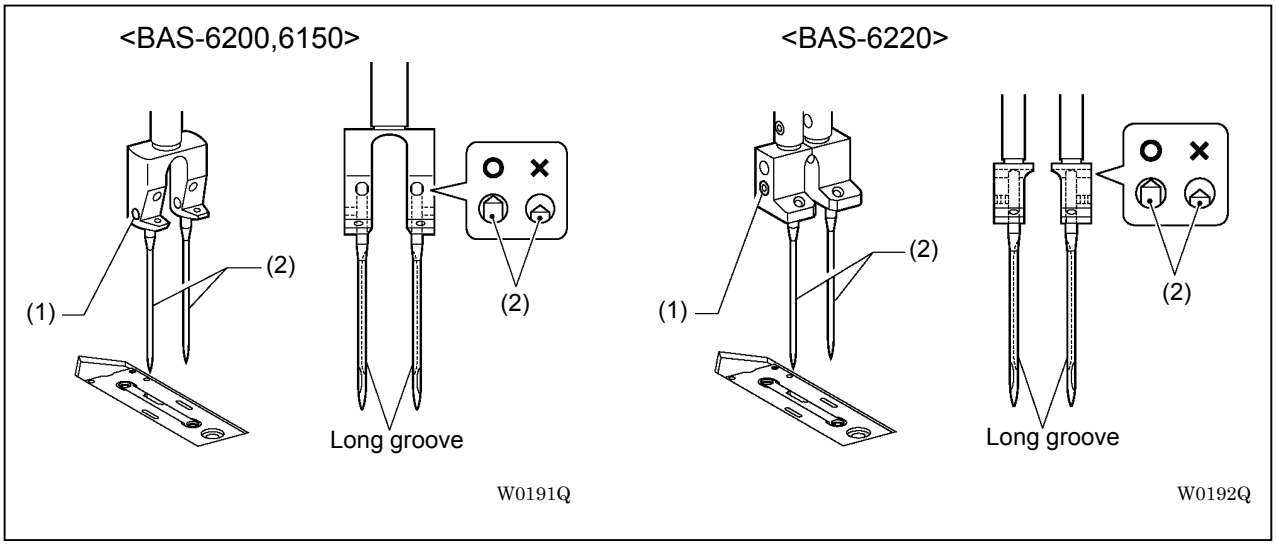
2-1. How to open the main plate



Pull up plunger (1) and lock it, then open main plate (2).

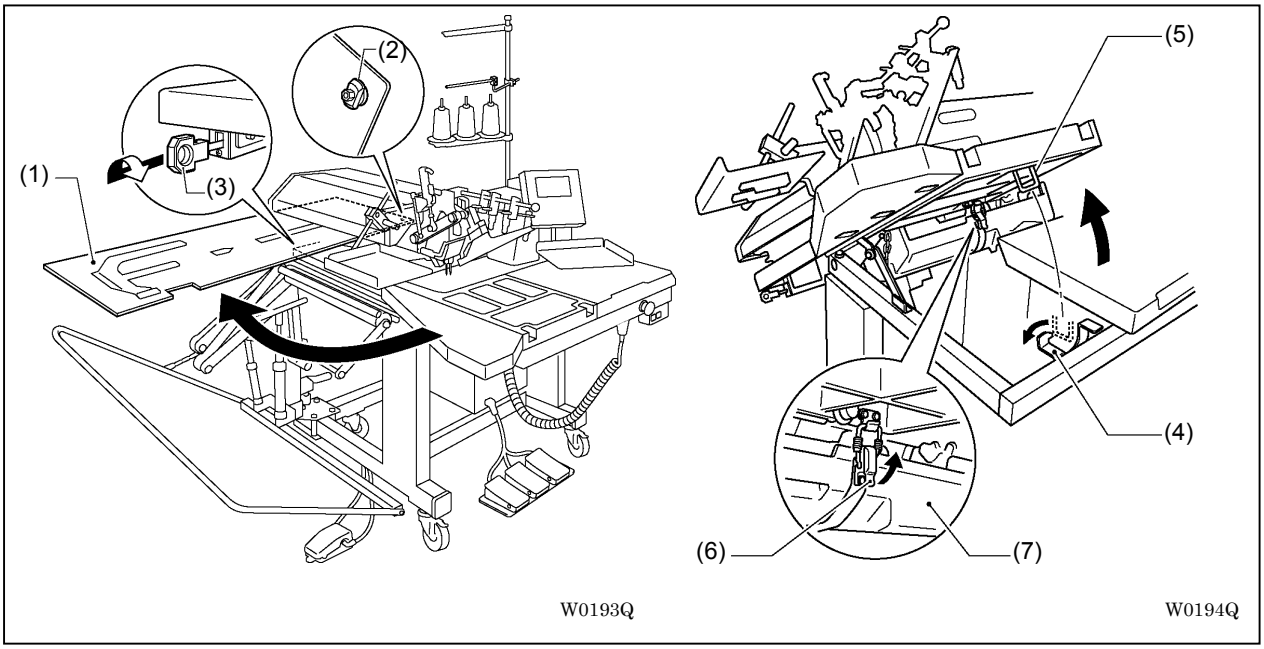
[Note] Open or close main plate (2) with binder (3) held up by hand not to touch the needle when binder (3) is in down position. Binder (3) goes down when the power or air supply is OFF.

2-2. How to mount the needle



1. Rotate the pulley to lift the needle bar to the highest position.
2. Pull up the plunger and lock it, and then open the main plate.
3. Loosen set screw (1).
4. Thrust needle (2) up straight with its long groove facing to the inside, then fasten up set screw (1).

2-3. How to raise the head



1. Lift up cloth slide plate (1) and turn it to be perpendicular.
2. Dismount pivot pin (2) from the sub table.
3. Pull and turn shaft stopper (3) located at the rear and lower end, and lock it.
4. Dismount hook (5) from support metal fitting (4) at lower front, and raise the machine.
5. Detach catch clip (6) and oil pan (7).

3. Basic adjustment

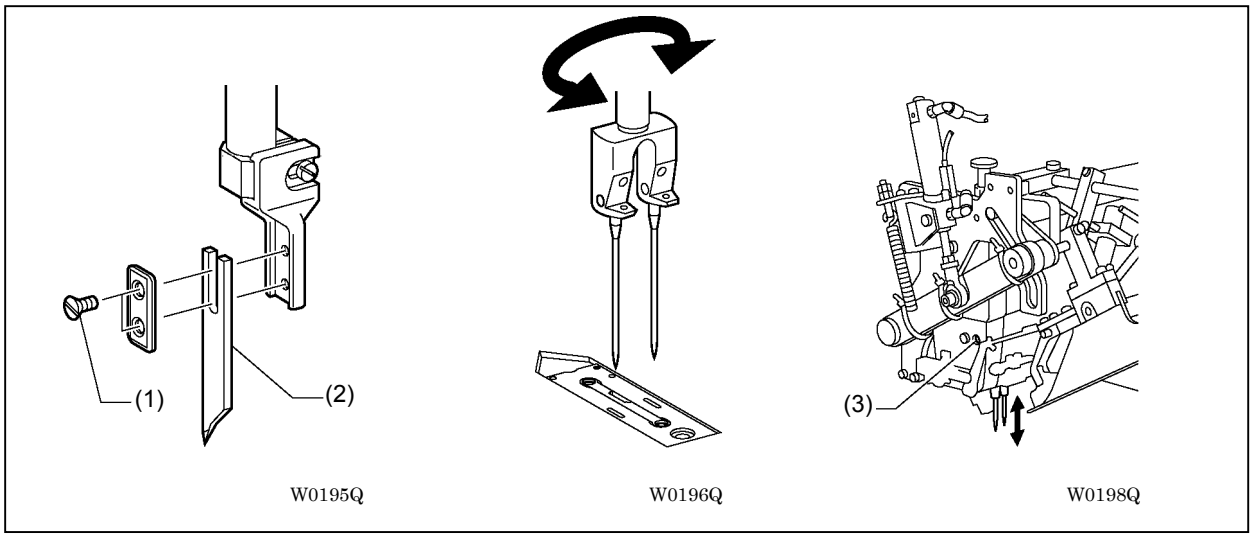
Caution

- Maintenance and inspection of the machine should be performed only by technicians who have been properly trained.
- Turn off the power switch and pull off the plug by holding not of the cord but of the plug for the following occasions. Otherwise, unintended press on the foot switch may cause injury.
  - maintenance, adjustment, and repair
  - replacement of consumable parts such as the rotary hook, knife, lamp, etc.
- When adjustment has to be done with the power switch and air supply on, pay enough attention to safety. Detach the air tube of air source and set the pointer of the pressure gauge to [0] for inspection, adjustment, and repair of air using devices.
- If safety devices are once detached, re-attach them to the original position. Make a check to confirm that they are in proper function.
- Loss and others due to remodeling the ma-chine are excluded from the scope of warranty.
- Do not put scissors, needles, threads, tools on the table when the machine is set upright. Falling down of them may cause damage to the machine or injury to human body.
- Ask your Brother dealer or a qualified technician for electrical maintenance and inspection.

3-1. Needle and rotary hook related

3-1-1. Replacement of the needle clamp

<BAS-6150 and 6200>

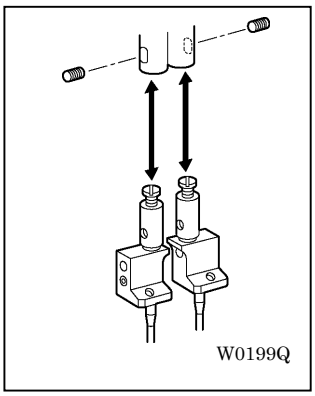


1. Loosen flat head screw (1) and detach center knife (2). (Refer to “3-8. Center knife related”)
2. Detach the needle and replace needle clamp.
3. Attach the needle.
4. Loosen fastening screw (3) and rotate the needle bar to adjust it so that the needle down position falls on the middle of the needle hole.
5. Attach center knife (2).

   [Note] Insert center knife (2) to the deepest position.

* Adjust the height of the needle bar after the replacement in reference to “3-1-2. Timing adjustment of encounter”.

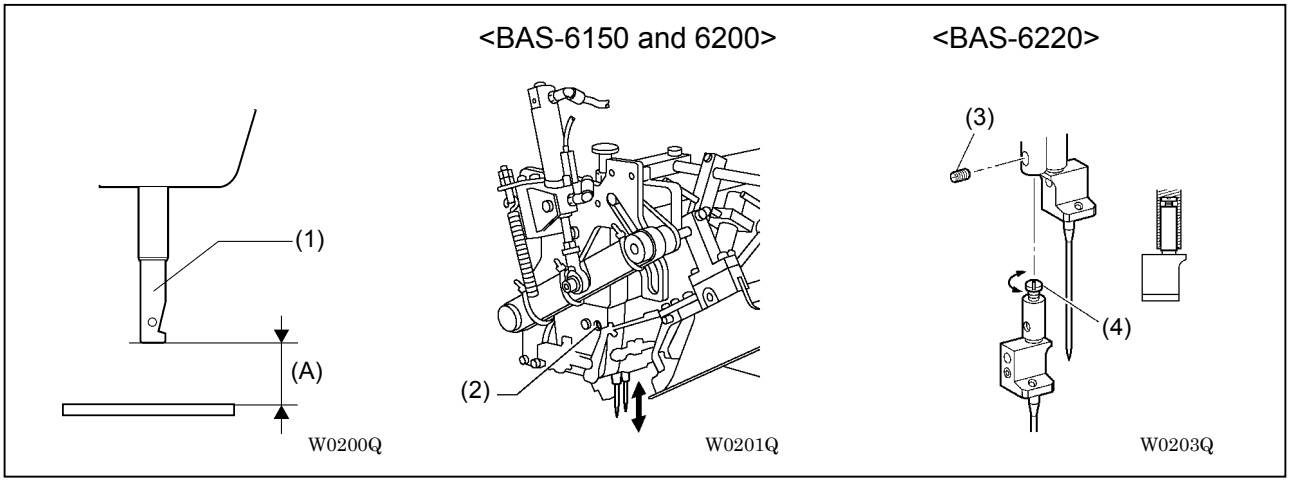
<BAS-6220>



Unscrew the set screw and replace the needle clamp.

* Adjust the height of the encounter after the replacement in reference to “3-1-2. Timing adjustment of encounter”.

3-1-2. Timing adjustment of encounter



1. Rotate the pulley to put the needle bar to the lowest position.
2. Adjust the heights of bottom surface of needle clamp (1) and of the needle plate according to the size A below:

   Size A = 22.3 mm (Ascending height 2.4 mm *)
   = 21.9 mm (Ascending height 2.8 mm *)
   = 21.4 mm (Ascending height 3.5 mm *)

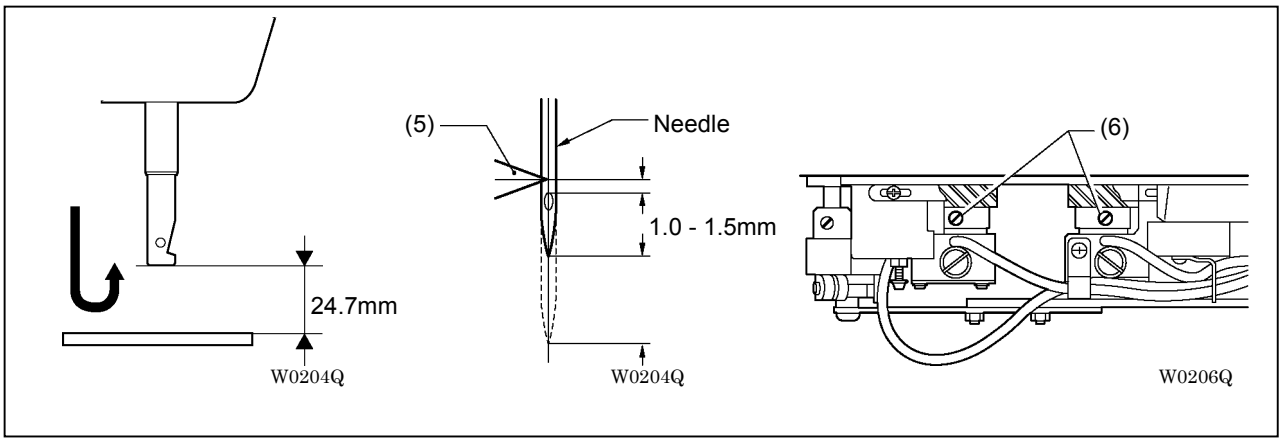
<BAS-6150 and 6200>

Loosen fastening screw (2) to adjust it.

<BAS-6220>

Unscrew set screw (3) and adjust the height of fastening screw (4).

* Numerals of 2.4, 2.8 and 3.5 indicate distances which the needle bar ascends from the bottom until the needle contacts with the rotary hook.
Locations with larger numbers will have less stitch skips (Average : 2.4). However, too much ascending distances can cause insufficient thread tension or stitch skips.



3. Turn the pulley further to adjust the clearance between the bottom surface of the needle clamp and the needle plate to be 24.7 mm.

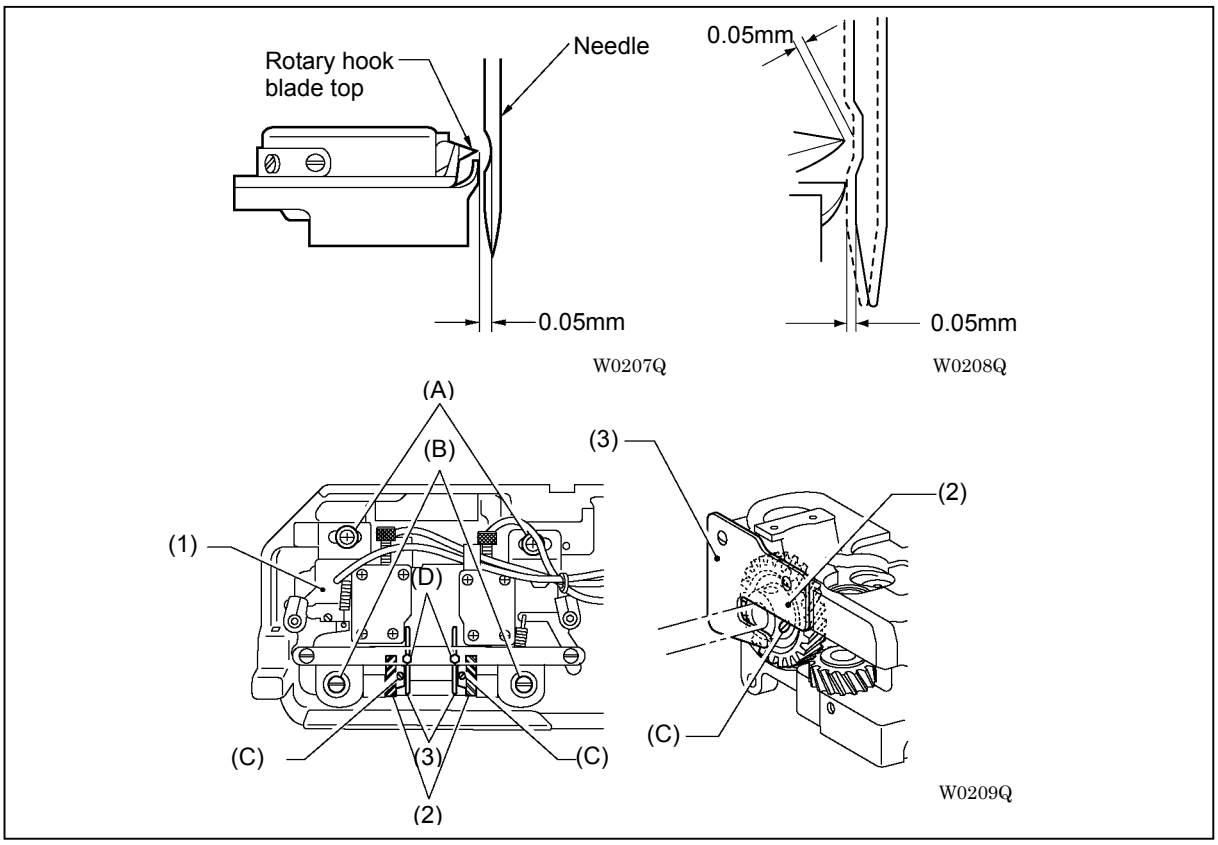
* At this position, the needle and the rotary hook encounters each other. (This position is fixed in any ascending distances of 2.4, 2.8 or 3.5.)

4. Loosen set screw (6) and rotate the rotary hook to align rotary hook blade top (5) with the center of the needle.

* Take off the needle plate while adjusting.

5. Confirm that the distance between the upper edge of the needle hole and the rotary hook blade top is 1.0 to 1.5 mm.

3-1-3. Clearance adjustment of the needle and the rotary hook

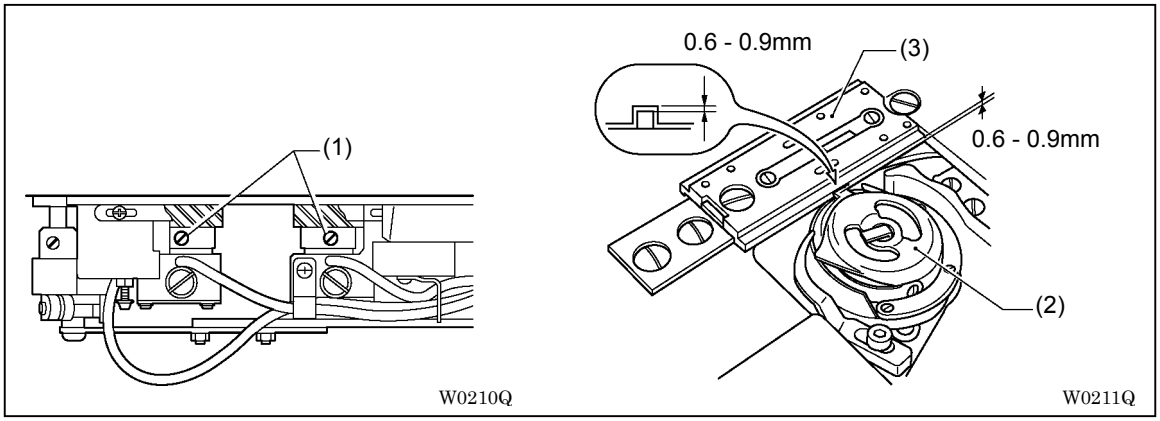


1. Loosen fastening screws (A), (B) and (C), then loosen bolt (D).
2. Let rotary hook base (1) move to right and left so that the clearance between the needle and rotary hook blade top be 0.05 mm.
3. Fasten screws (A), (B), (C) and bolt (D) tightly after the adjustment.

(Note) Fasten set screw (C) at the position where lower shaft gear (2) touches lightly with gear guide plate (3).

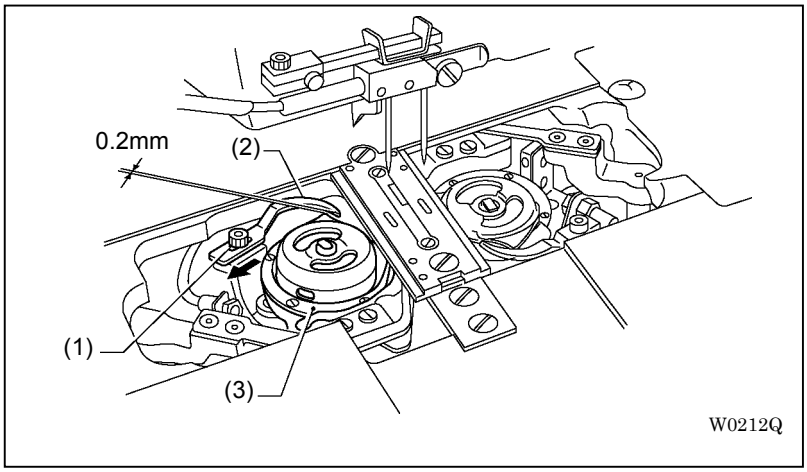
Fasten set screw (C) so as not to change the tightening force of set screw (C) lower shaft gear (2). Adjust the position of the lower thread trimming cylinder if needed. (Refer to “3-3-2. Adjustment of lower thread trimming”)

3-1-4. Clearance adjustment between the rotary hook and the needle plate



Loosen screw (1) and let the rotary hook (2) up and down so that the clearance between rotary hook (2) and needle plate (3) be 0.6 to 0.9 mm.

3-1-5. Clearance adjustment between the rotary hook and the bobbin case opener

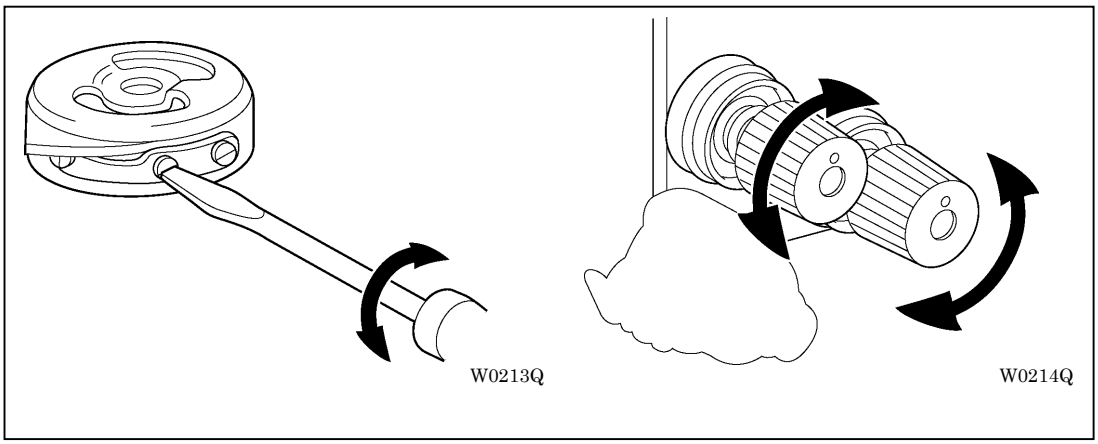


Loosen bolt (1) and let the bobbin case opener (2) move to right and left to adjust the clearance between rotary hook (3) and bobbin case opener (2).

Set the clearance between rotary hook (3) and bobbin case opener (2) to be 0.2 mm when bobbin case opener (2) is pulled far most to the direction of arrow.

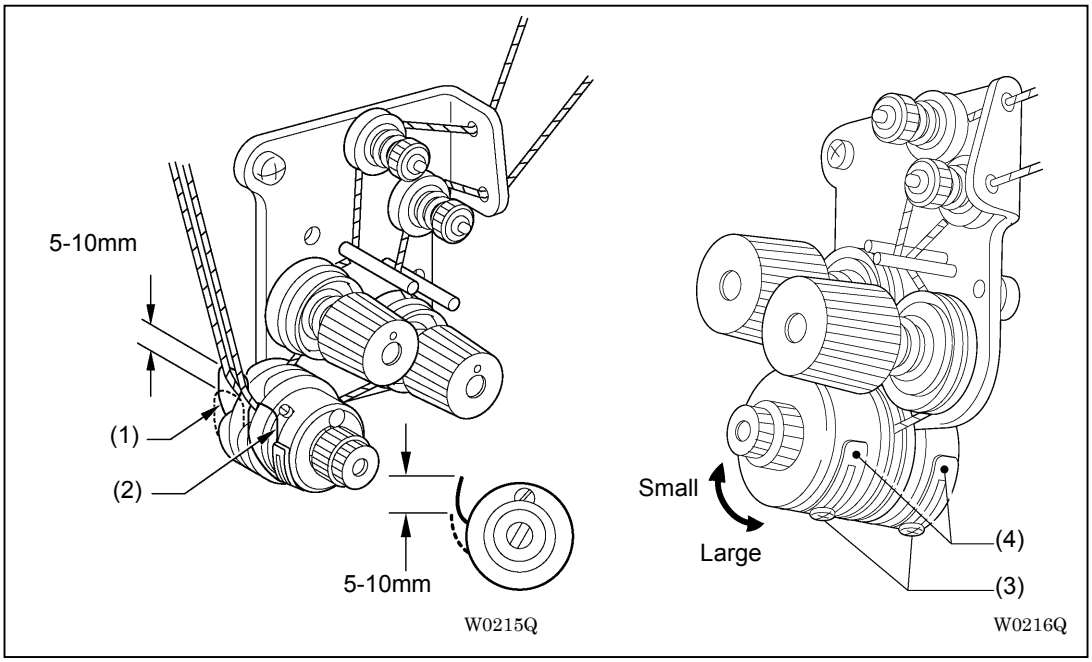
3-2. Thread tension

3-2-1. Adjustment of thread tension



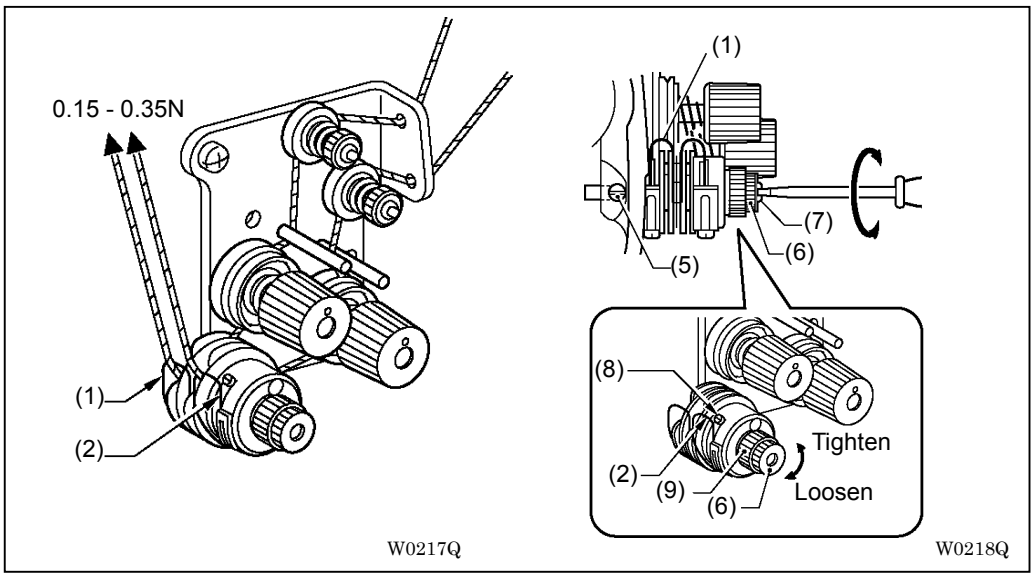
Adjust the lower thread tension first, then adjust the upper thread tension.

3-2-2. Adjustment of the operational scope of the thread take up spring



The standard operational scope of thread take up spring L (1) and R (2) is 5 to 10 mm. Loosen fastening screws (3) (right and left) and rotate thread take up spring stoppers (4) (right and left) for the adjustment.

3-2-3. Adjustment of resilience of the thread take up spring



The standard resilience of thread take up spring L (1) and R (2) is 0.15 to 0.35N respectively.

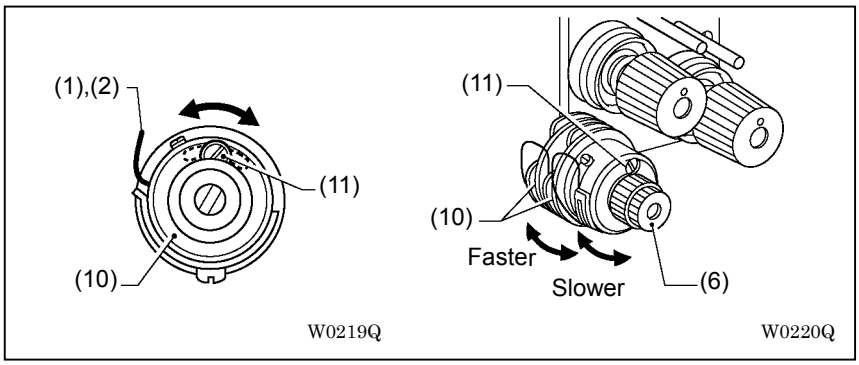
<Thread take up spring L (1)>

1. Open the face plate.
2. Loosen fastening screw (5).
3. Loosen knob (6) and rotate thread tension core (7) for the adjustment.
4. Tighten fastening screw (5) first, then tighten knob (6).

<Thread take up spring R (2)>

1. Loosen set screw (8).
2. Loosen knob (6) and rotate adjustment knob (9) for the adjustment.
3. Tighten fastening screw (8) first, then tighten knob (6).

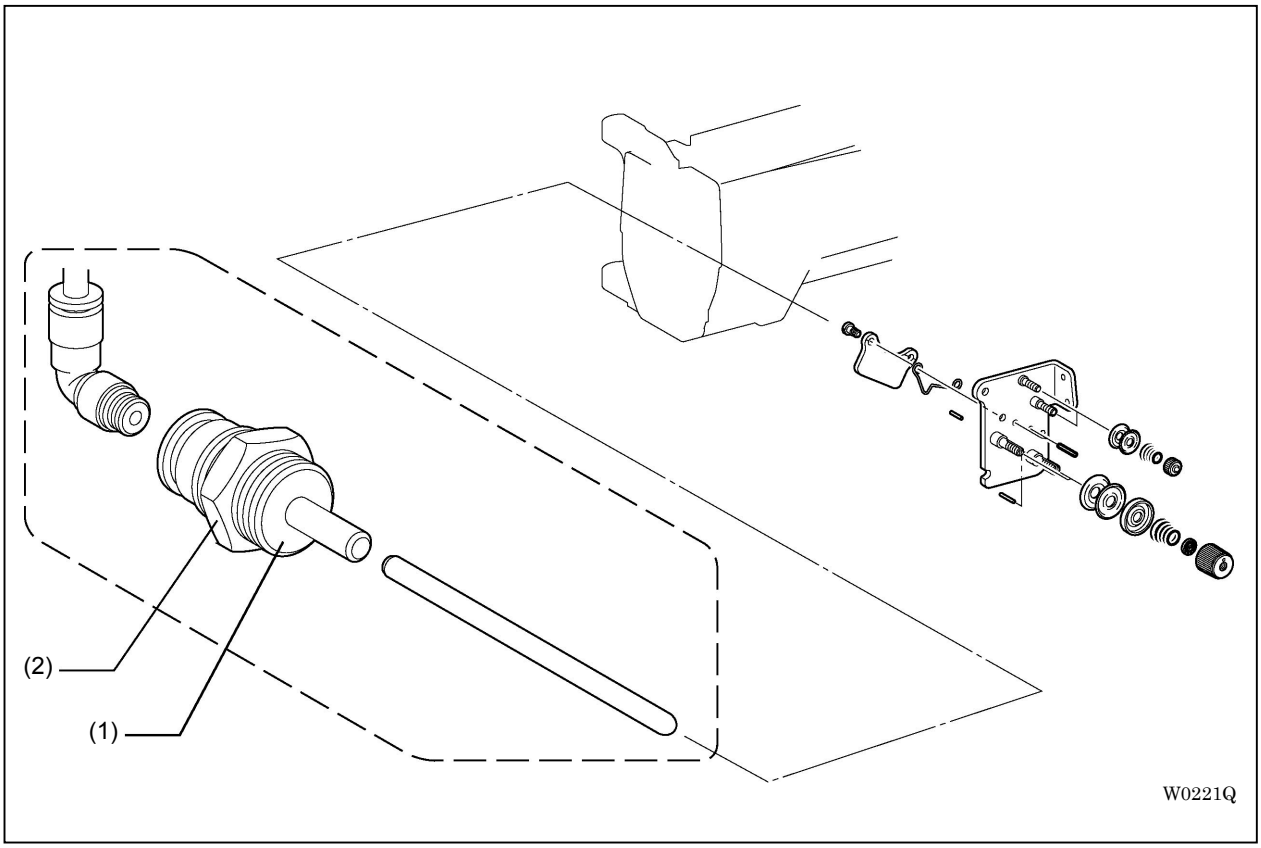
3-2-4. Adjustment of operational timing of the thread take up spring



The standard position for operational timing of thread take up spring L (1) and R (2) is the intermediate position of moving range of thread take up spring guide.

1. Loosen fastening screw (11).
2. Loosen knob (6) and rotate thread take up spring guides (10) (right and left) for the adjustment.
3. Tighten fastening screw (11) first, then tighten knob (6).

3-2-5. Adjustment of thread tension releasing

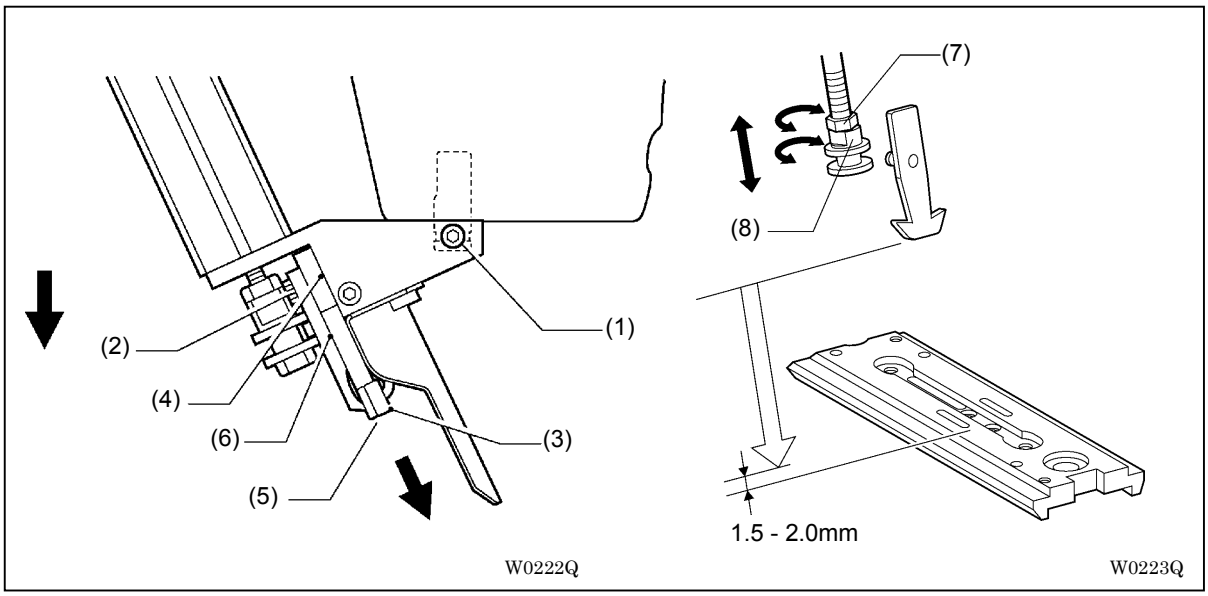


Loosen nut (2) of cylinder (1) to adjust the position of cylinder (1).

* Adjust the position of the thread tension releasing cylinder so that the thread tension plate can open completely and the upper thread should get no stress when the cylinder moves. And also the thread tension plate should close completely and hold down the upper thread when the cylinder returns.

3-3. Thread trimming

3-3-1. Replacement and adjustment of upper thread trimming related



1. Loosen set screw (1) and detach the thread trimming unit.
2. Detach parts in this order: Adjusting bolt (2), Thread holding plate (3), Upper knife guide (4), Movable knife (5), Fixed knife (6).
3. Replace thread retention plate (3), movable knife (5) and fixed knife (6) with appropriate parts that fit required gauges (needle widths).
4. Attach those parts and confirm that movable knife (5) moves smoothly.

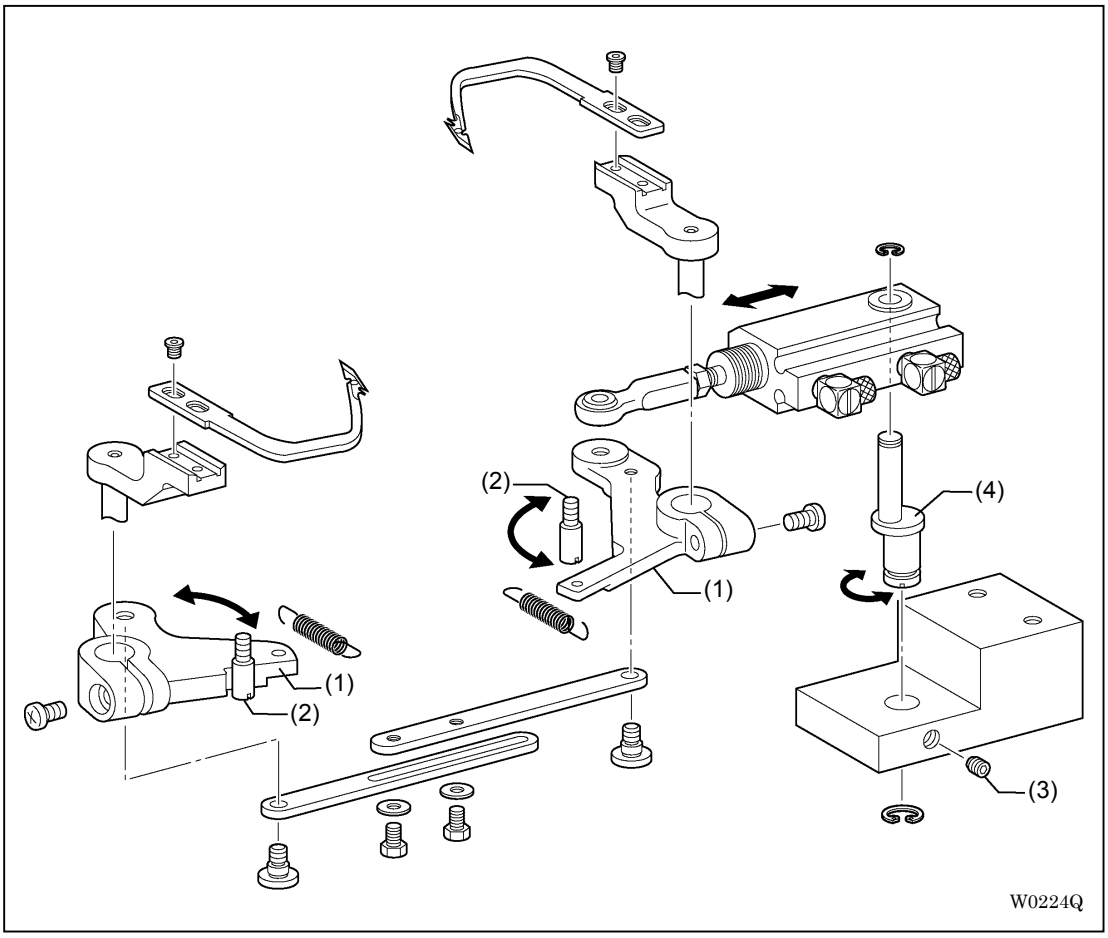
<Height adjustment of the movable knife>

Adjust the position of movable knife so that the clearance between the bottom face of the movable knife and the needle plate be 1.5 to 2.0 mm at its lowest point.

Loosen nut (7) and rotate thread trimming collar (8) for the adjustment.

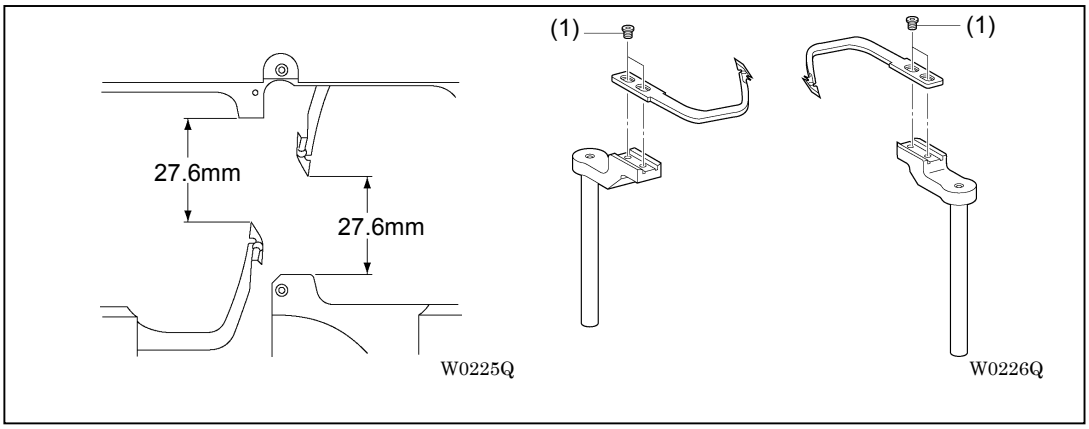
3-3-2. Adjustment of lower thread trimming

Carry out the following adjustment after a move of the rotary hook base.



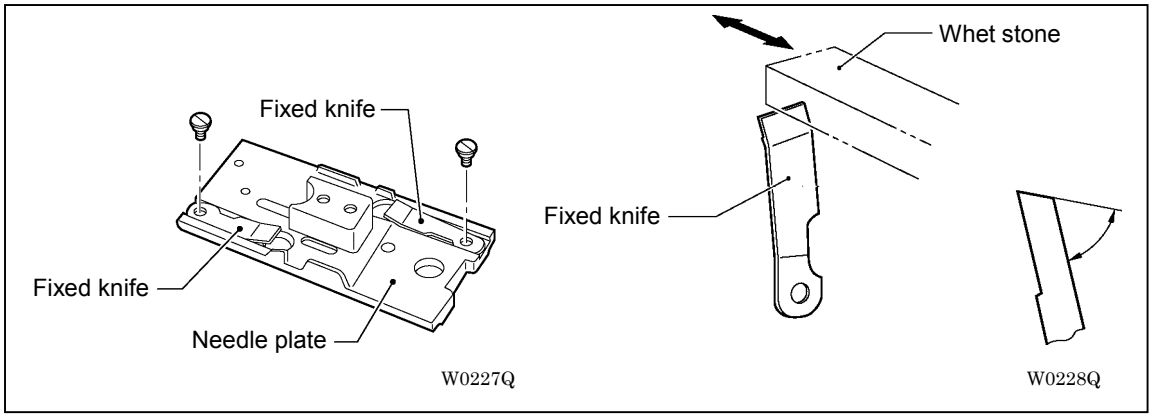
Adjust the position of the movable knife so that thread trimmer lever (1) and stopper (2) should touch the knife on standby. And also the movable knife should not touch a bobbin case while thread trimming.

Loosen set screw (3) and rotate eccentric shaft of the cylinder (4) for the adjustment.



Confirm that the movable knife sits in the position described above on standby. Loosen fastening screw (1) for the adjustment.

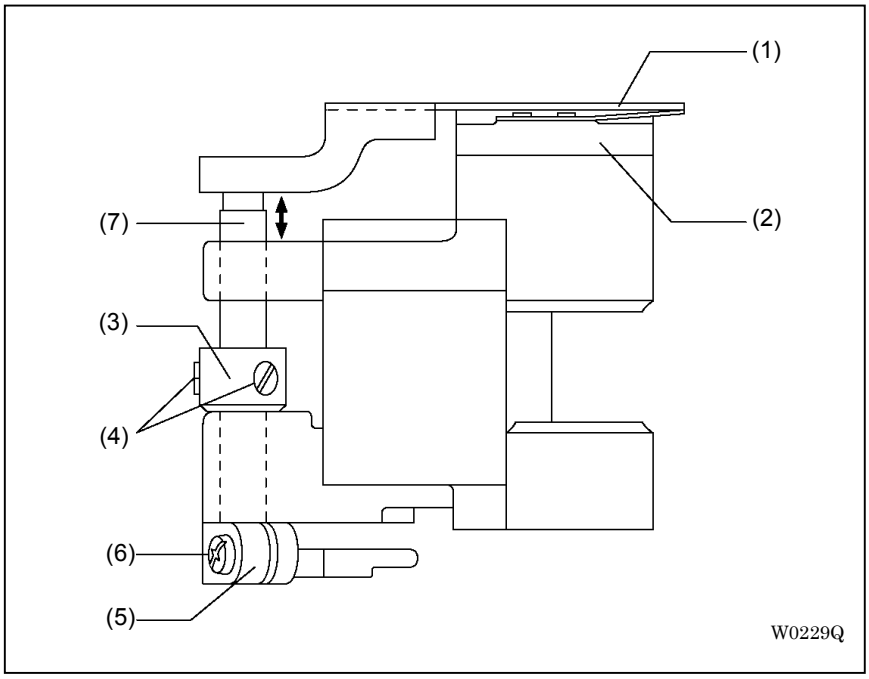
3-3-3. Replacement and adjustment of lower thread trimming related



Refer to the illustration above to sharpen the fixed knife.

Movable knife can not be sharpened with regular whet stones. Replace it with new one when the cutting gets uneasy.

<Adjustment of vertical position of the movable knife>



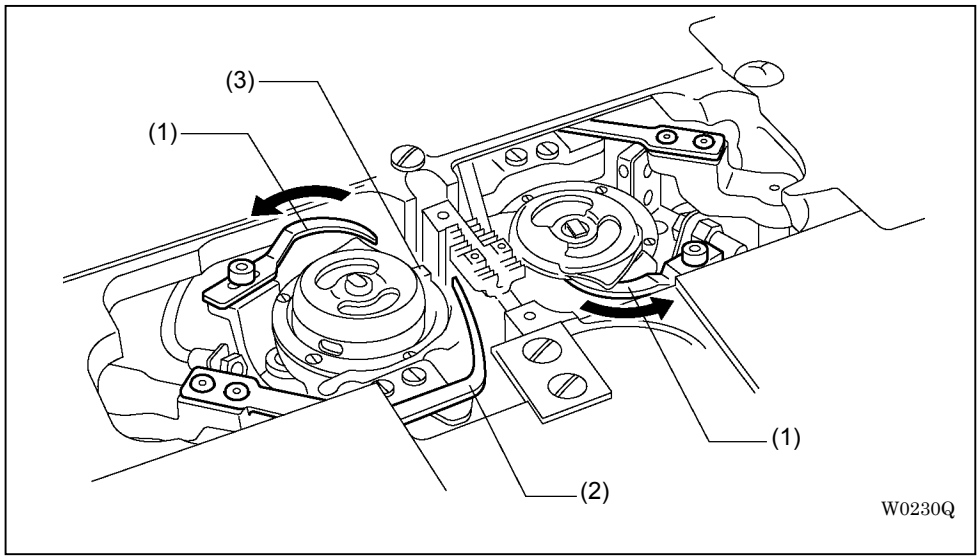
Loosen set screw (4) of set screw collar (3) and fastening screw (6) of thread trimmer lever (5) to move movable knife lever (7) up and down for the adjustment. so that movable knife (1) touches movable knife bracket (2) lightly.

* Pinch the movable knife lever (7) between set screw collar (3) and thread trimmer lever (5) so as to avoid swaying.

[Note] • If movable knife (1) is set lower than movable knife bracket (2):
Makes thread trimming mechanism constrained and can cause shut down. Thread trimming becomes clumsy.

• If movable knife (1) is set upper than movable knife bracket (2):
Can cause thread trimming failures.
The movable knife hits the bed, which can cause shut down.
Lower thread retention error will be given.

<Adjustment of setting position of the movable knife>

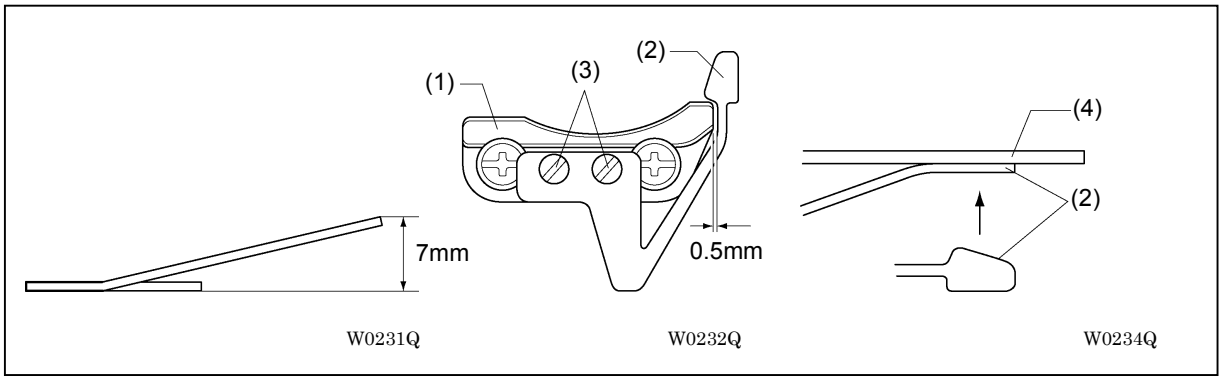


1. Rotate the pulley by hand to move bobbin case opener (1) to the deepest position toward the direction of arrow.
2. Adjust the clearance between the top of movable knife (2) and rotary hook stopper (3) to be in the range of 0.05 to 0.20 mm and tighten fastening screw (4).

   [Note] Hitting rotary hook stopper (3) by movable knife (2) or too wide clearance can cause thread trimming failures.

<Adjustment of the lower thread retaining spring>

Double needled-machines can not continue sewing if lower threads are not retained after thread trimming. Be sure to adjust this lower thread retaining spring precisely.



1. Set the height of the lower thread retaining spring to be 7 mm.
2. Adjust the clearance between movable knife bracket (1) and lower thread retaining spring (2) to be 0.5 mm and tighten fastening screw (3).
3. Arrange lower thread retaining spring (2) so that its top would closely contact with the back side of movable knife (4) attached to the holder.

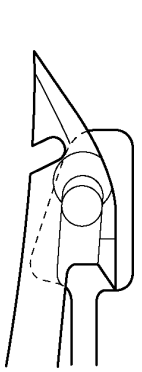
* If they are not closely contacted, it can cause stitch skips or thread come-offs.

* Those troubles are more frequent in cases that the lower thread is relatively thinner compared to the upper thread.

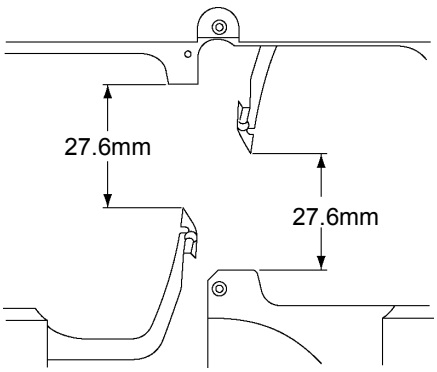
[Note] • If the lower thread retention is too strong:
Causes stitch skips or thread come-offs at the sewing start-up.

• If the lower thread retention is too weak or deviated:
Causes stitch skips at the sewing start-up.

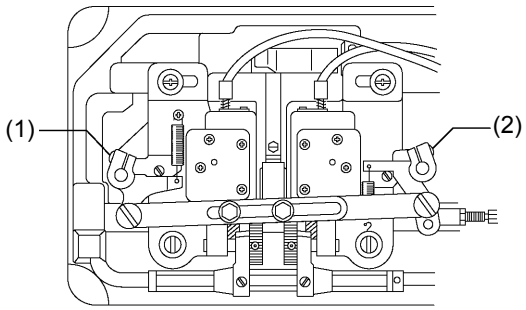
<Basic formation of the movable knife and the lower thread retaining spring>



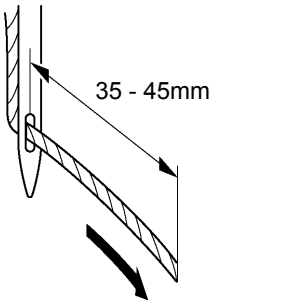
W0235Q



W0225Q



W0236Q



W0237Q

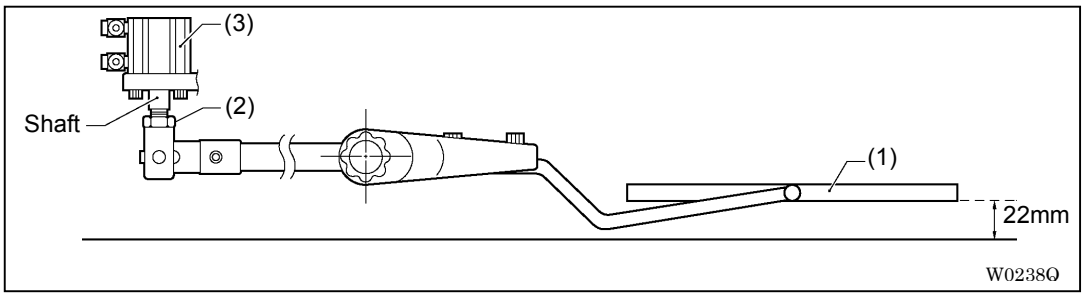
In basic formation, the top of the hook unit of movable knife and the top of lower thread retaining spring should contact each other at a point. In this formation, the movable knife sits in the position described in the upper right figure above. Loosen fastening screws (1) and (2) on the thread trimming lever for the adjustment.

[Note] • The position of movable knife has to be adjusted in the range of ± 0.5 to 1.0 mm from the basic formation above. If it is set forward (rotary hook side, in case smaller than the size described above) :
Insufficient thread tension or upper thread trimming failures occur in extreme positioning.
Lower thread retention declines after thread trimming. Causes stitch skips or thread come-offs at the sewing start-up.
The remains of upper thread hanging out of the needle hole will be shorter after thread trimming. Especially in the right side, snips of upper thread will remain around the movable knife, and it can cause extremely short trimming of upper thread.

• If the movable knife is set backward (in case larger than the size described above) :
Upper thread trimming failures occur. Lower thread trimming failures also occur in extreme positioning.
Lower thread retention declines after thread trimming. Causes stitch skips or thread come-offs at the sewing start-up.
The remains of upper thread hanging out of the needle hole will be longer after thread trimming. If it gets so long that can not be absorbed by the pretension, lower thread retention will decline. Appropriate length range of the remains of upper thread, which is hanging out of the needle hole after thread trimming, is 35 to 45 mm.

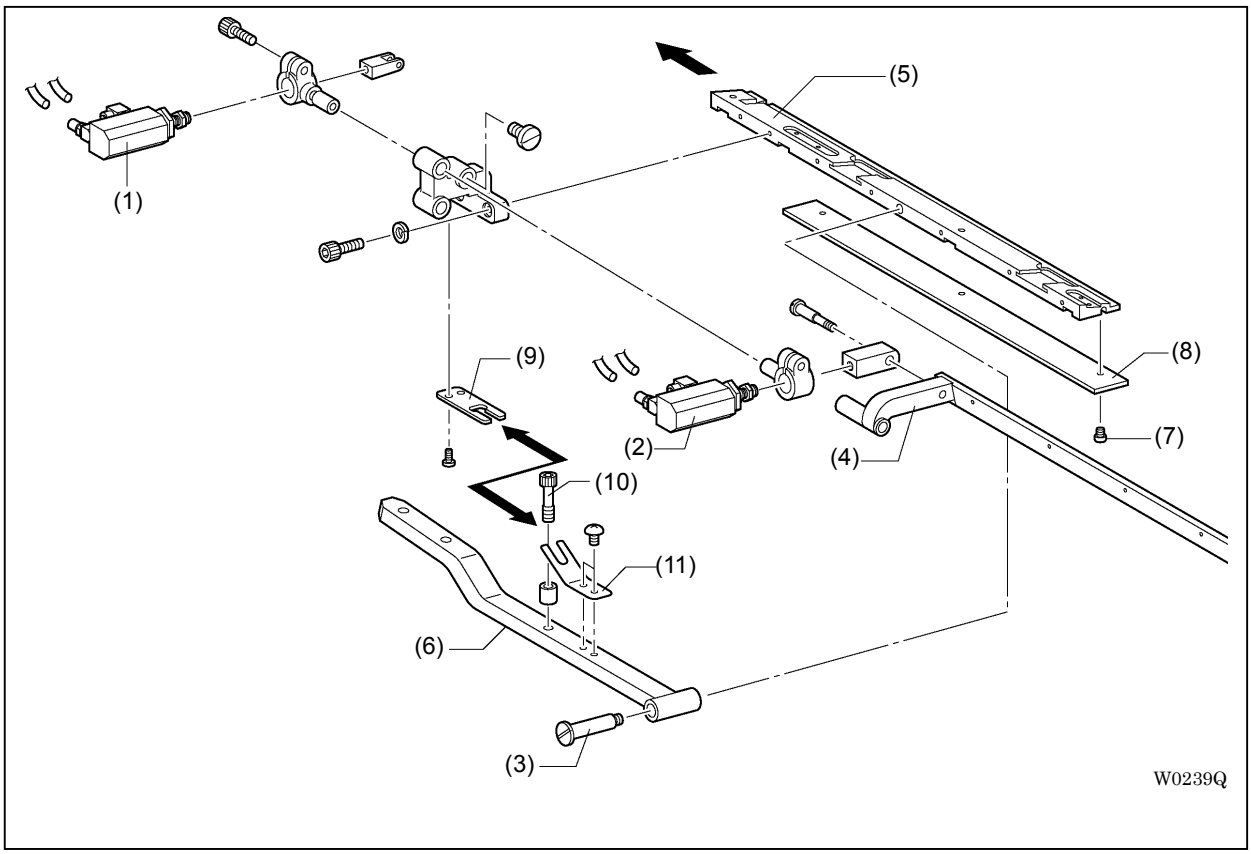
3-4. Carriage feed

3-4-1. Height adjustment of the carriage feed



Adjust the height of the top end of carriage feed(1), when it is up, to be 22 mm from the slide plate.
Loosen nut (2) and rotate the shaft of cylinder (3) for the adjustment.

3-4-2. How to detach the carriage feed and replacement of the rubber

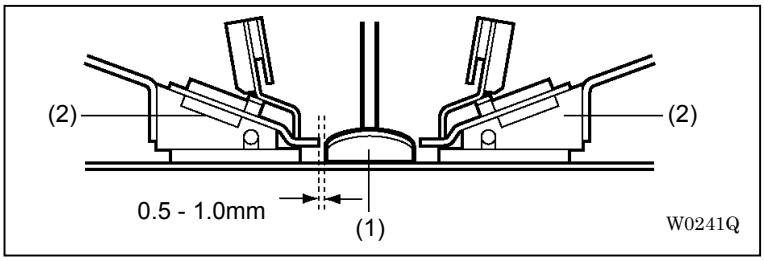


1. Detach air hoses from both of cylinder for folding plate (1) and cylinder for carriage feed (2).

* BAS-6200 and 6220 models have no air leakage even if the hose is detached from the valve.

2. Unscrew shoulder screw (3).
3. Hold up flap clamp blade (4), and move carriage feed (5) to the direction of arrow to detach it from lever (6).
4. Detach fastening screw (7), then replace carriage feed rubber (with the stainless plate)(8).
5. Insert stopper & positioning plate (9) between the top of adjusting bolt (10) and carriage feed spring (11) when attaching the carriage feed.

3-4-3. Width adjustment of the carriage feed



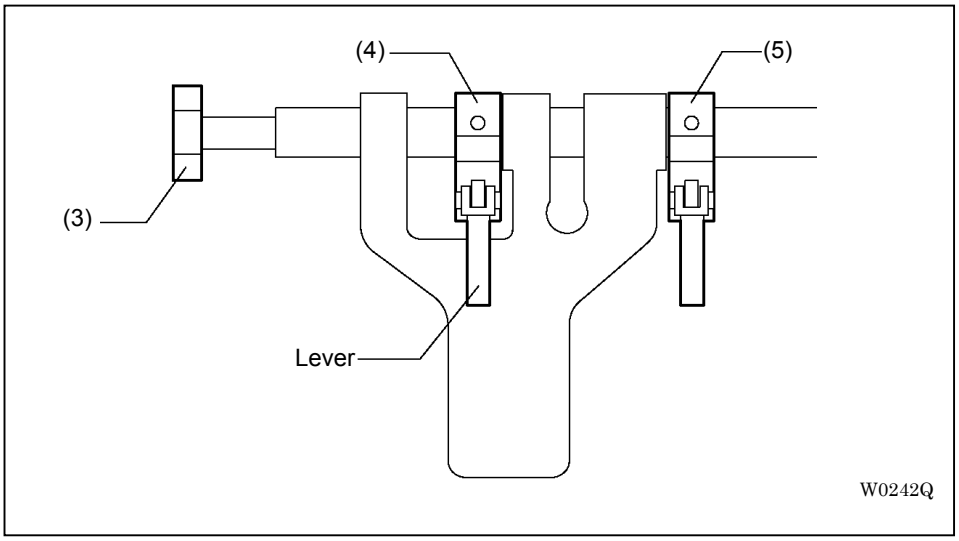
The clearance between binder (1) and carriage feed (2) is 0.5 to 1.0 mm.

1. On the operation panel, choose program menus of “do not use both folding plates” and “use both flap clamps”.
2. Press down the foot forward switch (the center foot switch in default setting) until binder (1) goes down and stays there.

* Putting a piece of white paper beneath the carriage feed can improve the visibility of the space between binder (1) and carriage feed (2).

3. If the space is identified, press down the foot backward switch (the left foot switch in default setting) until carriage feed (2) goes up and stays there.

<BAS-6200 and 6220>



4. Push up the required lever of direction stopper to release the locking.

[Note] Be sure never to release both levers of inside and outside stoppers at the same time. If both are released, the adjustment might be disabled, and even causes a danger of sudden move of the carriage feed when it is filled with air.

5. Turn knob (3) to adjust the width of the carriage feed.

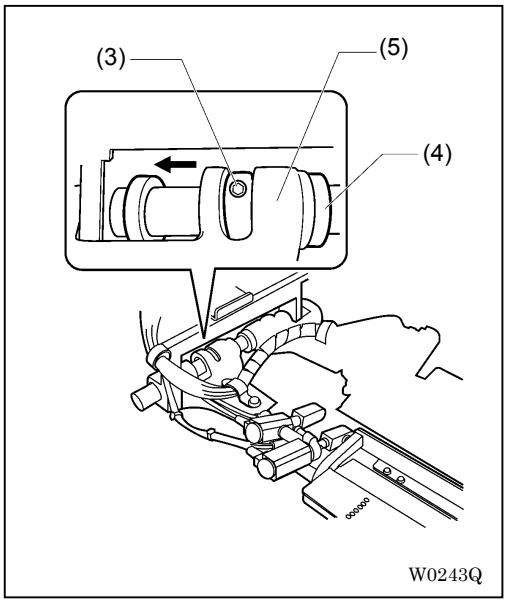
   If the lever of outside stopper (4) is released: Turning knob (3) to the right moves stopper (4) toward the inside and makes the width narrower.

   If the lever of inside stopper (5) is released: Turning knob (3) to the right moves stopper (5) toward the outside.

6. Repeat the operation above until the distance between binder (1) and carriage feed (2) becomes 0.5 to 1.0 mm. After the adjustment, press down the lever of stopper to lock it.

* Give the same adjustment to each carriage feed on the right and left.

<BAS-6150>



4. Loosen set screw of set collar (3) for the adjustment.
5. Pinch carriage feed lever (5) between set collars (3) and (4) so as to fix it.

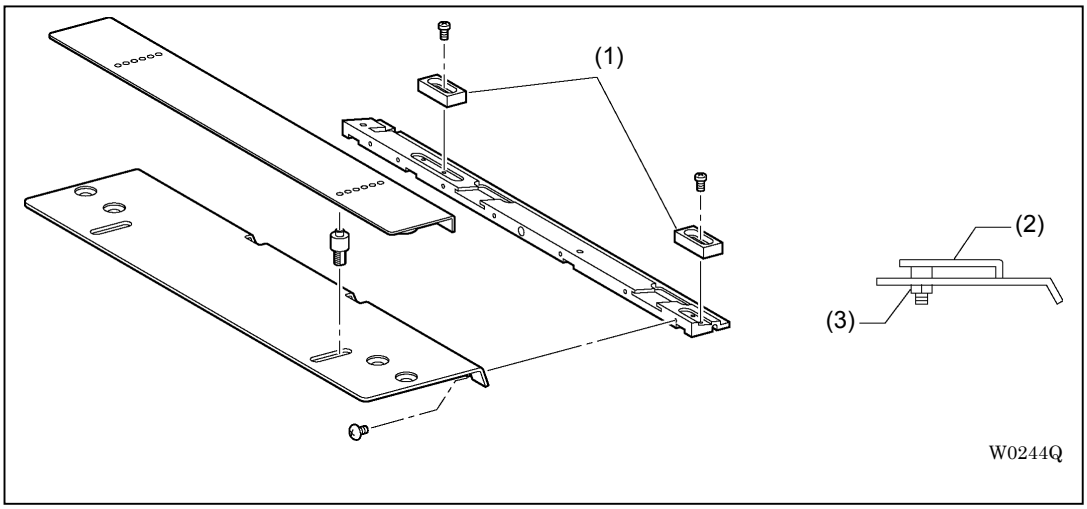
3-5. Flap clamp

3-5-1. Adjustment of the flap stopper and the flap gauge

<Flap stopper>

Put the flap on flap stopper (1) to fix the sewing position. Loosen the fastening screw to adjust the position.

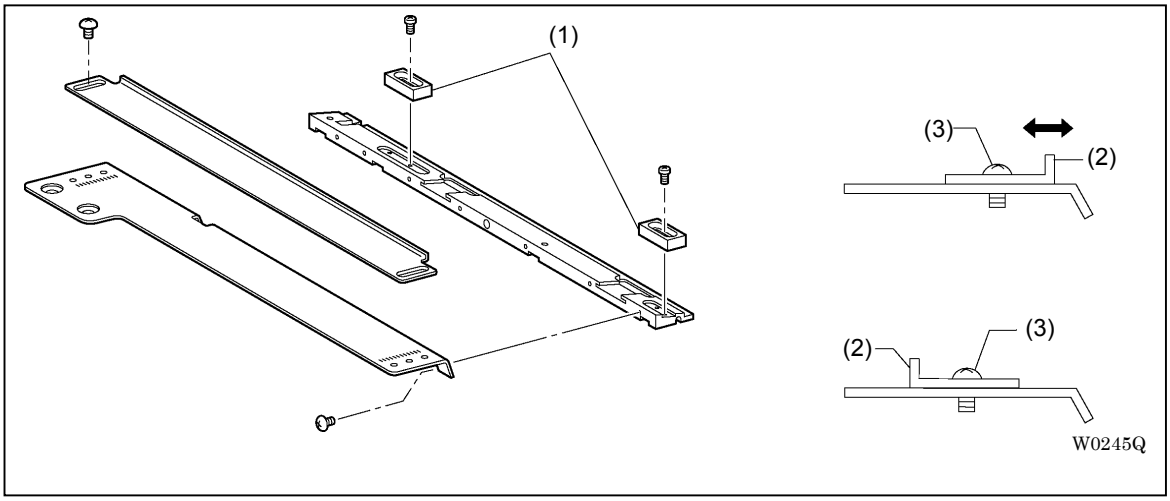
<Flap gauge: Long type>



Hold up flap gauge (2) to change the setting hole to use. The distance between holes is 5 mm.

Loosen nut (3) for fine adjustment.

<Flap gauge: Short type>

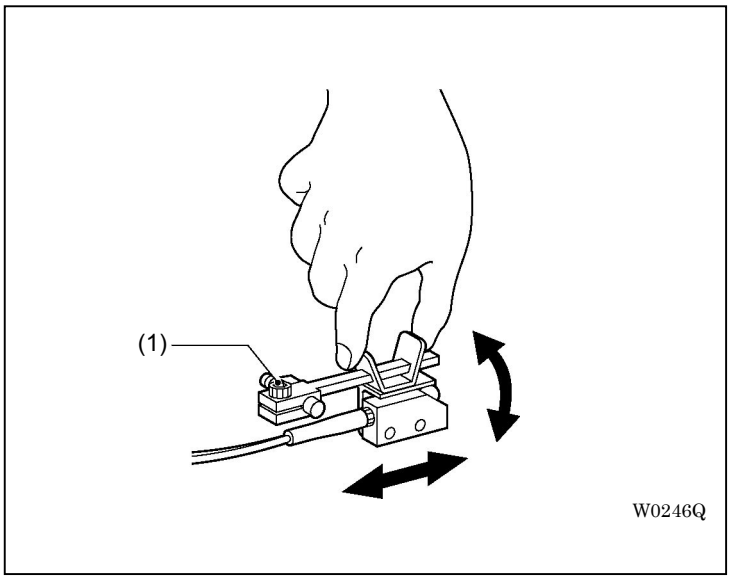


Loosen fastening screw (3) of flap gauge (2) for the adjustment.

Change the direction of flap gauge (2) if needed in use.

3-5-2. Position adjustment of the flap sensor (lens)

Be sure to adjust the position of the flap sensor after the gauge is replaced.



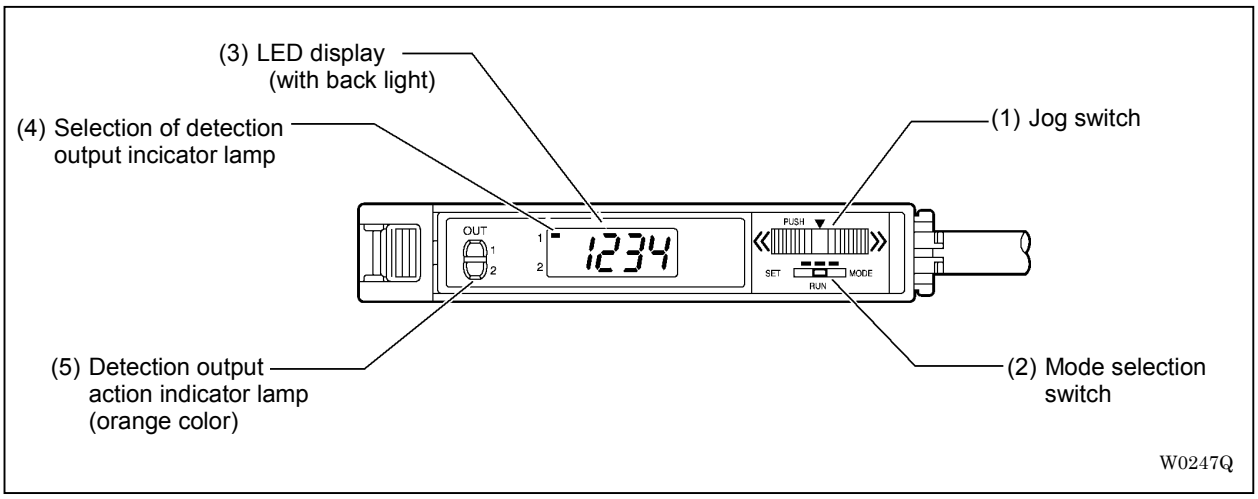
1. Press down the foot switch a few times until the flap goes down and stays there.
2. Press the emergency stop switch and turn to the right to reset it.

* The feeding motor becomes free and the feeder can be moved manually.

3. Adjust the position so that the light emitted from the flap sensor is reflected on the reflection seal when the carriage feed passes under the flap sensor.

   Hold the knob of the sensor holder and slide it for the adjustment. Choose the position where the amplifier gives the maximum value.
4. If the reflection is faint, loosen adjusting bolt (1) and adjust the rotating direction as well.

3-5-3. Flap sensor (amplifier) setting



(1) Jog switch

Change values by pushing down to (+) or (-) side.

(2) Mode selection switch

[RUN]: Set to this position in the normal detective condition.

[SET]: Set to this position for setting the sense degree.

(3) LED display

The current reflection light amount is displayed with numbers from 0 to 4090 when the mode selection switch is set to [RUN]. The current threshold value (limit value to decide ON/OFF of the sensor) is displayed with numbers from 0 to 4090 when the mode selection switch is set to [SET].

(4) Selection of detection output

Which one of detection output 1 or 2 is selected is indicated. Rotation of the jog switch can change 1 to 2 and vise versa. For this equipment, output 1 is used.

(5) Detection output action indicator lamp

LED is turned on when the sensor is ON. For this equipment, the indicator 1 shows the sensor condition.

<Threshold value setting>

Perform the following adjustment for left and right sensors.

1. Dismount the cover for the sensor amplifier and set the mode selection switch to [SET].

   Confirm the detection output is selected to be [1].

2. The current threshold value is displayed in LED screen. (Set the value 300.)

   Decrease the value (200 - 300) when the reflected light is not strong enough and a detection error occurs.

3. Set the mode selection switch to [RUN].

4. Mount the cover for the sensor amplifier.

<Normal display>

Set the mode selection switch to “RUN” except for amplifier setting. The current reflection light amount is displayed within the range from 0 to 4090. Larger values mean larger amount of light.

In above case, pushing down on the jog switch changes the display to the percentage (0 to 999 %) to the threshold value. If the light amount is equal to the threshold value, 100 % will be displayed.

The next pushing down on the switch changes the display to the reflection light amount. Set to this display normally.

<Threshold value display>

Sets the threshold value to decide the limit of the flap in flap detection. Larger reflections than this value will be judged to be out of the flap, and smaller reflections will be on the flap.

If the lens is adjusted correctly, the reflection on the flap is 100 or fewer, and on the reflection tape it is 500 or more. The threshold value is set to 300 (factory setting) for this case.

For some reason, if the reflection level stays insufficient even after lens adjustments or reflection tape cleanings, it is impossible to perform stable flap detection. The following procedures are required to change the threshold value then:

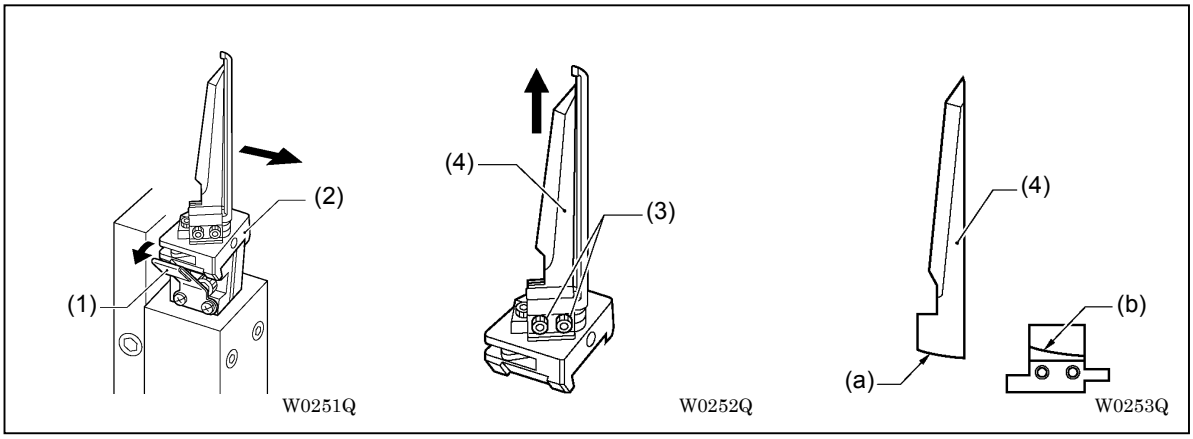
1. Set the mode selection switch to “RUN”.
2. Turn the jog switch to (+) or (-) side to change the output value to “1”.
3. Set the mode selection switch to “SET”.
4. Turn the jog switch to (+) or (-) side to change the value. The target value has to be smaller than the minimum value on the whole reflection tape, but still larger than values on the flap.
5. Set the mode selection switch to “RUN”.

3-6. Corner knife

[Note] Be careful not to cut fingers etc. with the corner knife.

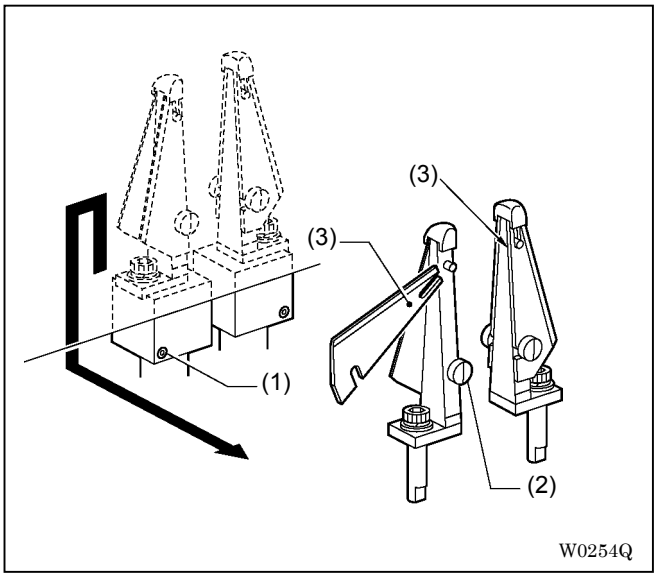
3-6-1. Detachment and replacement of the corner knife

<Adjustable type (BAS-6200 and 6220 Standard)>



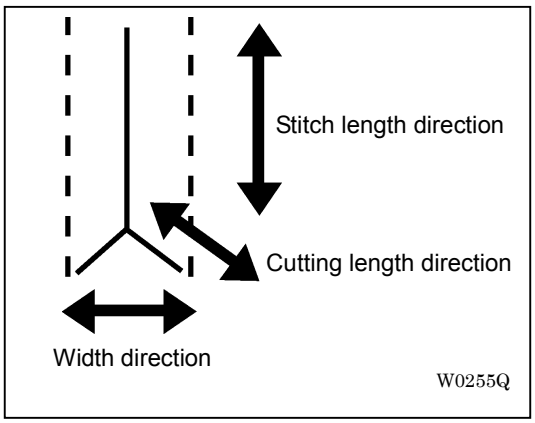
1. Detach corner knife base (2) by pulling it forward with lock spring (1) down.
2. Loosen adjusting bolts (3) (two pieces) and detach corner knife (4).
3. Replace corner knives (4) (two pieces) with new ones and fix them with adjusting bolts (3).
   [Note] Push out corner knives so that the end surface (a) to fit onto surface (b).
4. Attach corner knife base (2) to the cylinder.

<Fixed type (BAS-6150 Standard)>

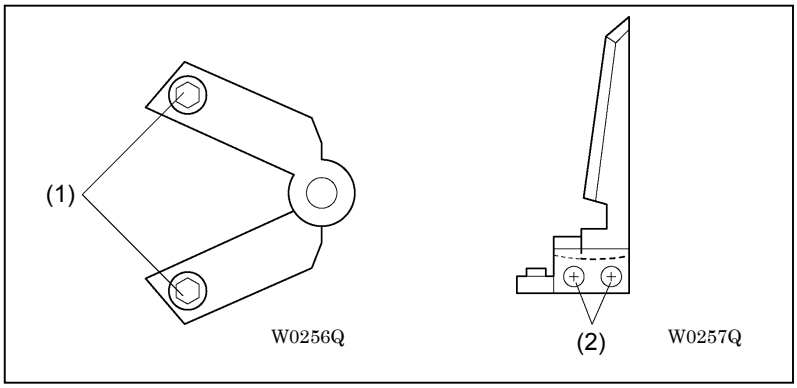


1. Loosen set screw (1) and detach the corner knife base.
2. Loosen fastening screw (2) and replace corner knife (3).
   Attach corner knife (3) so that its end surface fits onto the surface of the corner knife base.

3-6-2. Fine adjustment of the corner knife

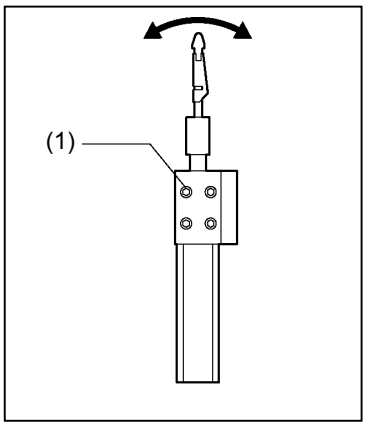


<Adjustable type (BAS-6200 and 6220 Standard)>



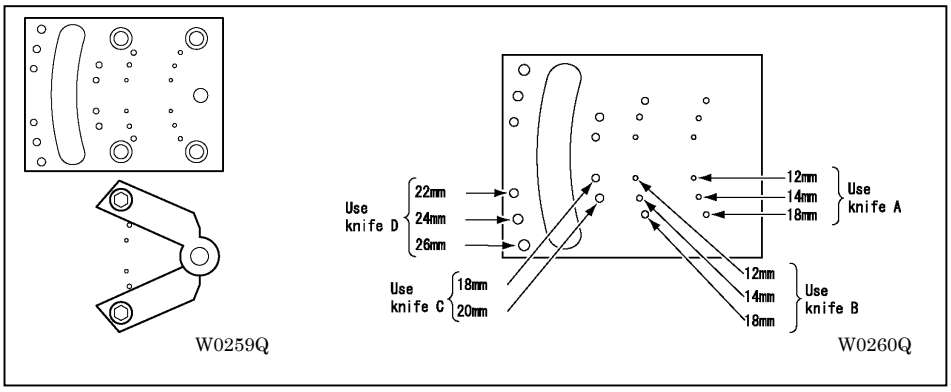
1. Use the operation panel to adjust the stitch length direction.
2. Loosen adjusting bolt (1) to adjust the width direction.
3. Loosen adjusting bolt (2) and shift the corner knife along the arc to adjust the cutting length direction.

<Fixed type (BAS-6150 Standard)>



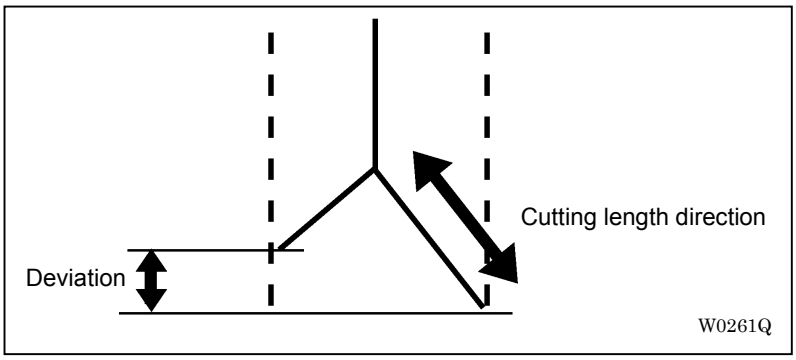
1. Use the operation panel to adjust the stitch length direction.
2. Loosen adjusting bolt (1) and move the cylinder to adjust the difference in the width direction.

3-6-3. Standard position of the corner knife (Adjustable type (BAS-6200 and 6220 Standard))



To set the corner knife to the standard position, align the corner knife pedestal with adjusting holes on the corner knife base. Adjusting holes may vary according to the gauges or knives.

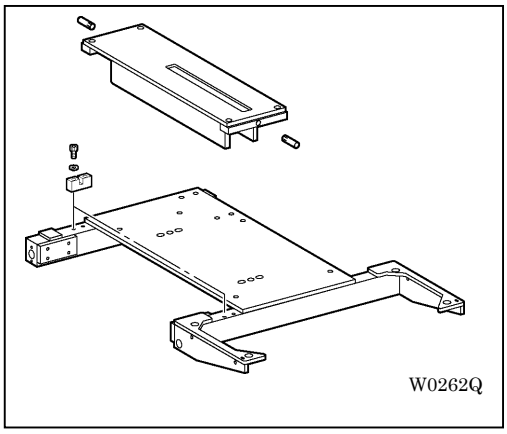
3-6-4. Adjustment of the corner knife for slant stitch (BAS-6220)



According to the deviation amount set on the operation panel, change the cutting lengths of right and left corner knives. Change corner knives to match wider deviations. Refer to the table below for the combination of corner knives.

		Deviation												
		0	1	2	3	4	5	6	7	8	9	10	11	12
Gauge	8	A&A				A&B								
	10	A&A				A&B								
	12	B&B												
	14	B&B							B&C					
	16	B&B							B&C					
	18	C&C						C&D					C&E	
	20	C&C							C&D				C&E	

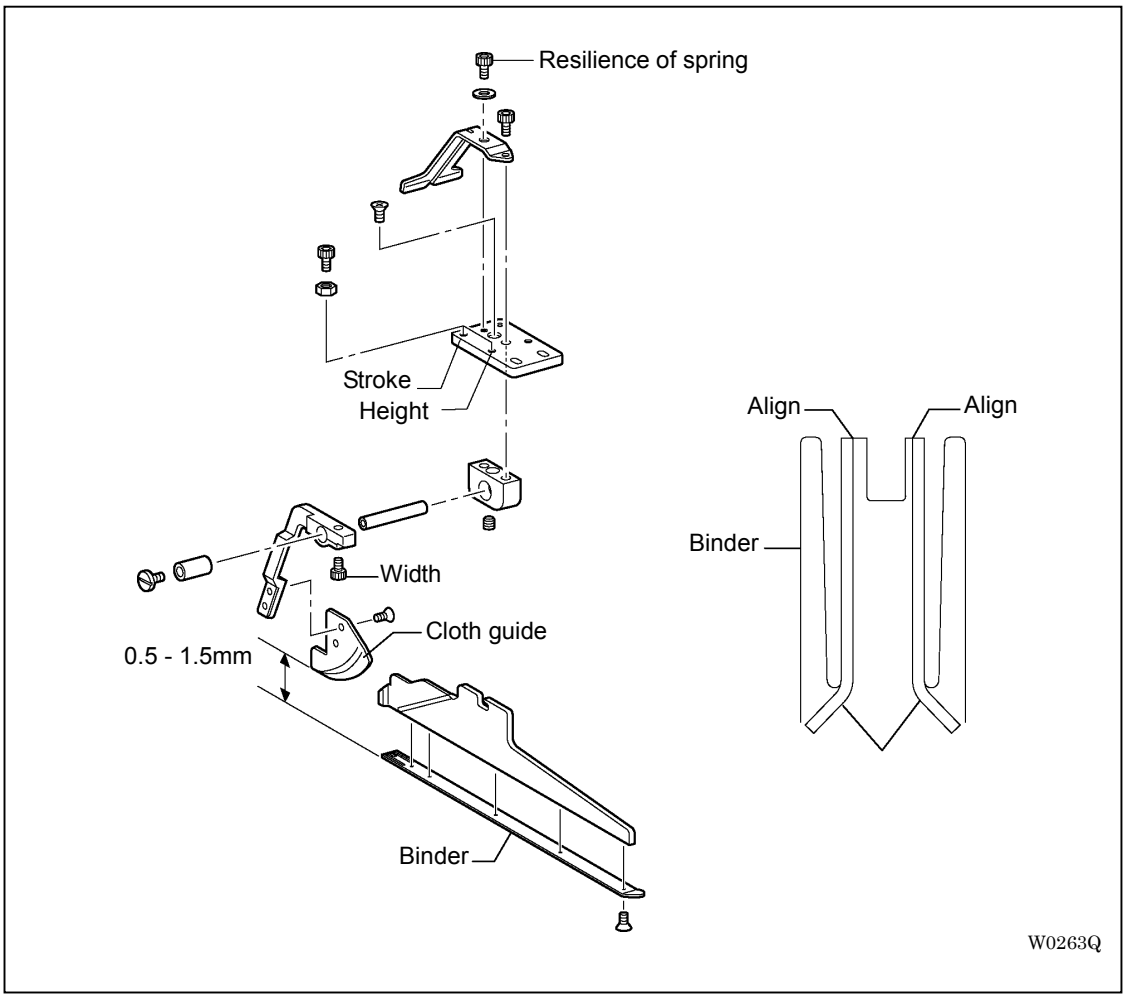
3-6-5. Replacement of the corner knife table



1. Pull the carriage feed forward fully.
2. Open the main plate to detach it.
3. Pull out the corner knife table with holding it slanted, and replace it.

3-7. Binder related

3-7-1. Adjustment of the cloth guide



Adjust it after replacement of gauges or according to sewing materials.

<Right and left positioning> To set to the standard position, align the needle groove of the binder with the outside surface of the cloth guide. Loosen the adjusting bolt to adjust the width of the cloth guide.

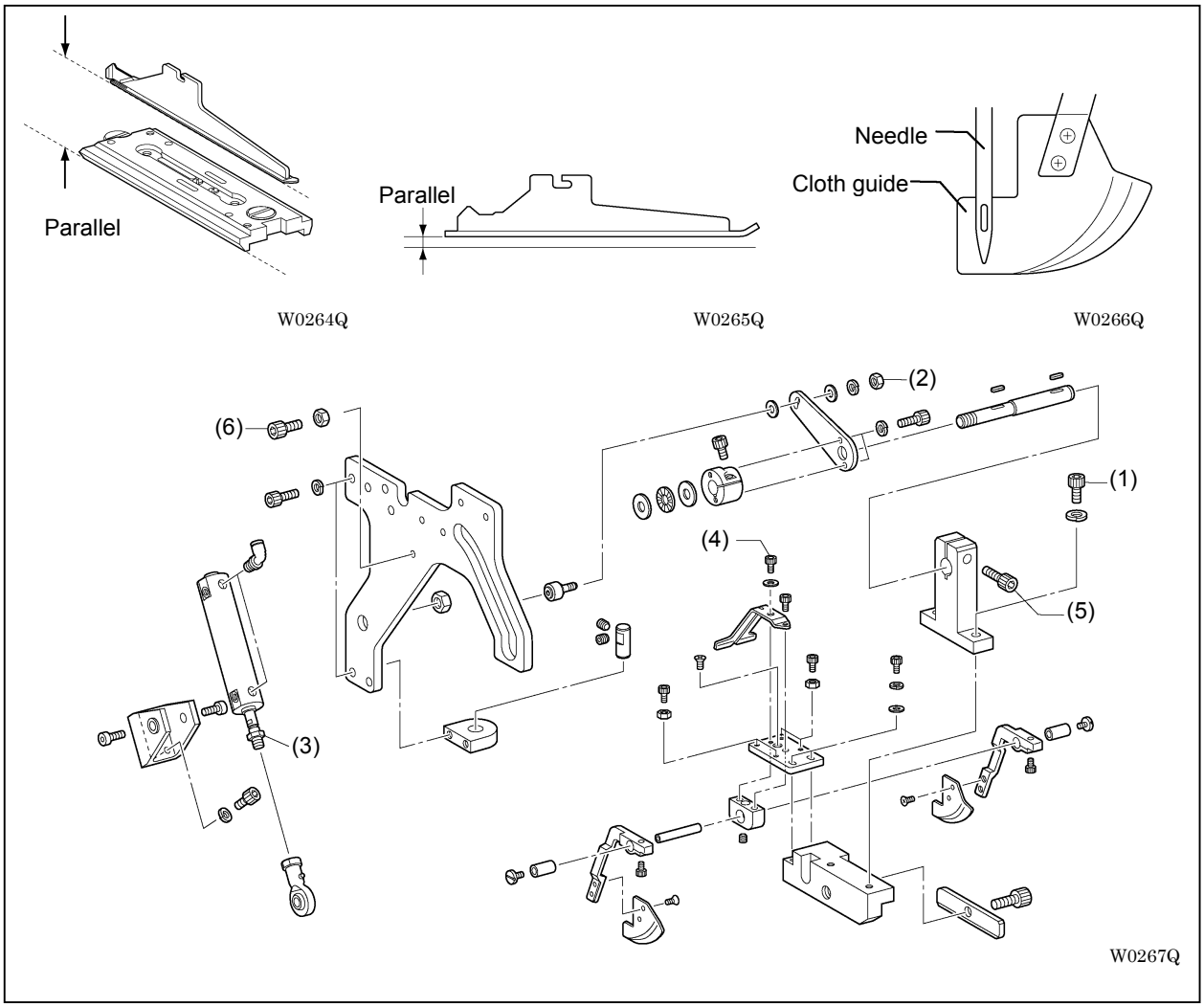
<Height> Adjust the distance between the cloth guide and the binder to be 0.5 to 1.5 mm. Loosen the nut and rotate the adjusting bolt for the adjustment.

<Resilience of the spring> Too weak resilience of the spring can cause welting cloths unsettled or needle breakage. Too strong resilience of the spring can cause catching of welting cloths. Rotate the adjusting bolt for the adjustment.

<Stroke> Adjust the cloth guide so as not to hit the needle holder even when the holder moves.

Loosen the nut and rotate the adjusting bolt for the adjustment.

3-7-2. Adjustment of the binder



<Feeding direction> Loosen adjusting bolt (1) to adjust the binder so that it parallels to the side edge of the needle plate.

<Horizontal> Loosen nut (2) of the cam follower to adjust the binder so that its bottom face parallels to the cloth slide plate.

<Height> Adjust the distance between the bottom face of the binder and the cloth slide plate to be 0.5 mm when the binder has come down. Loosen nut (3) of the cylinder and rotate the rod for the adjustment.

<Plate spring board F> Adjust the back end of the cloth guide to be behind the needle.Loosen adjusting bolt (4) of the plate spring board F for the adjustment.

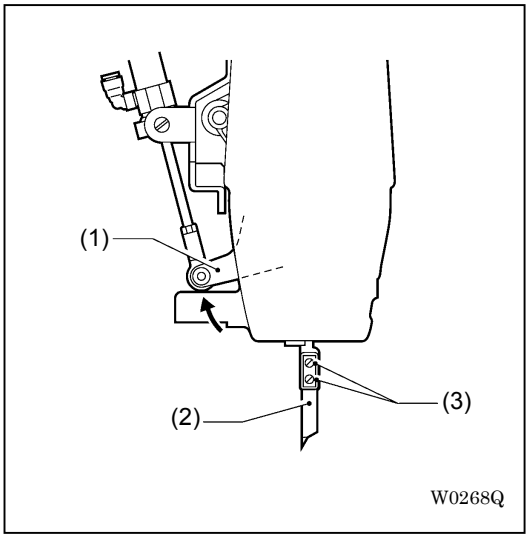
<Centering> Adjust the needle groove on the back end of binder bottom to be the center point of the needle.Loosen adjusting bolt (5) on the gauge mounting plate for the adjustment.

<Rattle prevention of the main plate> Loosen nut (6) on the closed main plate and rotate the adjusting bolt for the adjustment.

3-8. Center knife related

3-8-1. Replacement of the center knife and pressure adjustment

<How to detach the center knife (upper knife)>

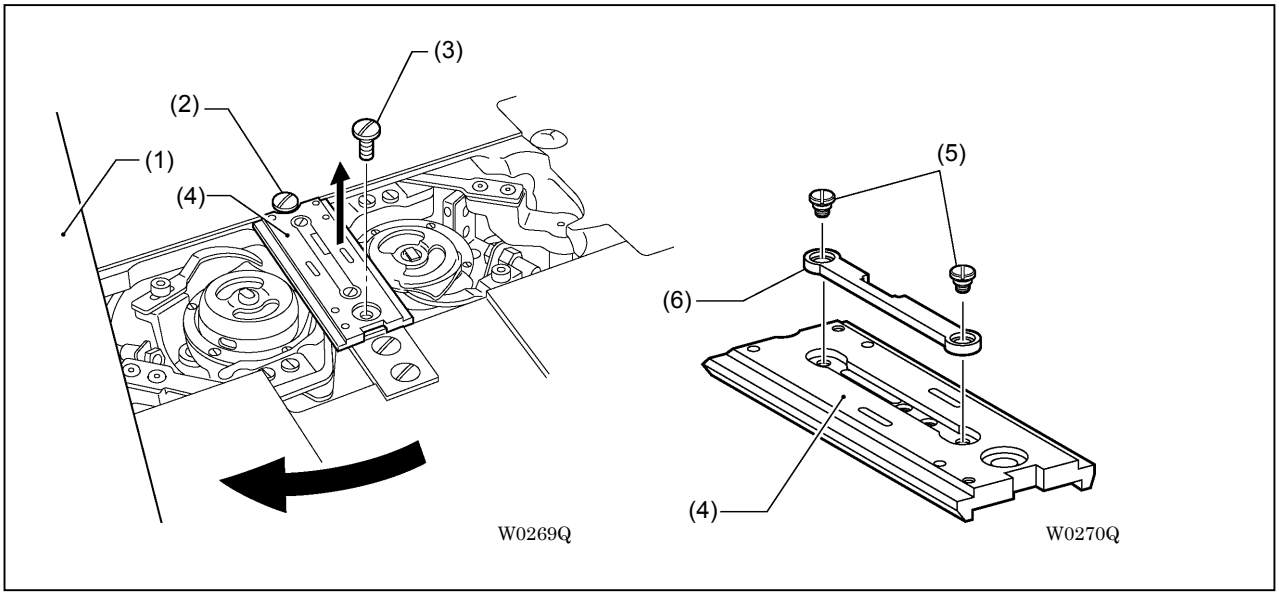


Let center knife drive connecting rod (1) go up.

[Note] Be careful of the descent of center knife (2).

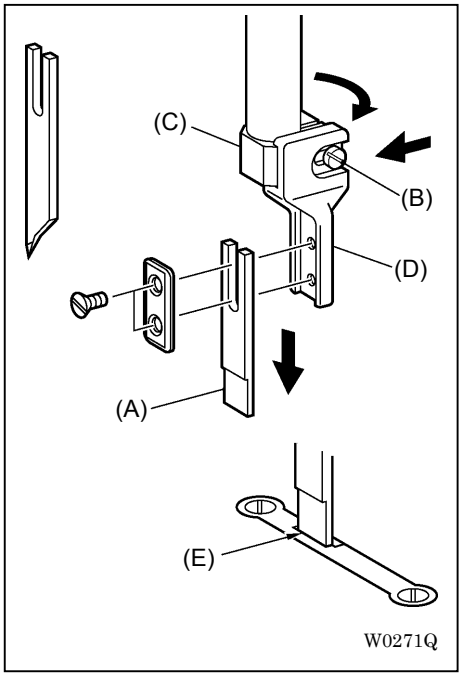
Loosen fastening screws (3) and remove center knife (2).

<Replacement of the fixed knife>



1. Open cloth slide plate (1).
2. Loosen fastening screw (2) in the rear part.
3. Unscrew fastening screw (3) on the near side and detach needle plate (4).
4. Unscrew shoulder screws (5) (two pieces) and replace fixed knife (6).

<Pressure adjustment of the center knife (upper knife) and the fixed knife>

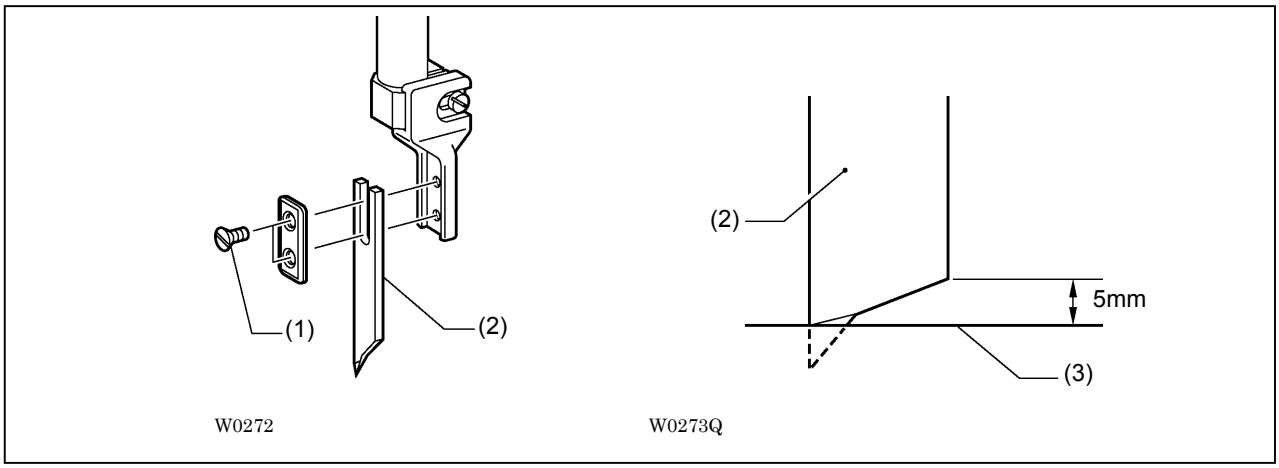


1. Replace the center knife with a center knife jig A (Attachment).
2. Loosen fastening screw B and rotate the pulley to make the center knife jig A go down.
3. Adjust the center knife jig A so that it closely contacts with the fixed knife at face E . (Rotate C and slide D)

   Tighten the fastening screw in this state.

   * Try to move the center knife jig A up and down widely to confirm that the center knife jig A would not sit on the fixed knife and that no space lies between the center knife jig A and face E.

<How to attach the center knife (upper knife)>

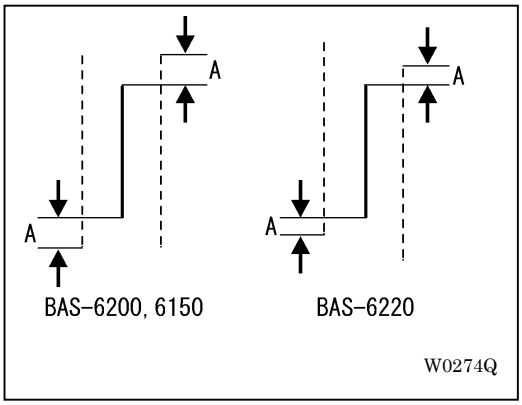


1. Loosen fastening screw (1) and replace upper knife (2).

   [Note] Press the upper knife to the deepest position for the attachment.
2. Rotate the upper shaft pulley and confirm the upper knife (2) goes up 5 mm high from needle plate (3) when the upper knife reaches the highest point.

3-8-2. Position where the center knife comes down

The table below shows the standard position. Choose “Center knife correction” in the operation panel menu for fine adjustment.



Gauge	Size of A (mm)
8	7.3
10	6.8
12	6.1
12	10.5
14	9.9
16	9.3
18	15.4
20	14.9

4. Attachment and adjustment of other devices

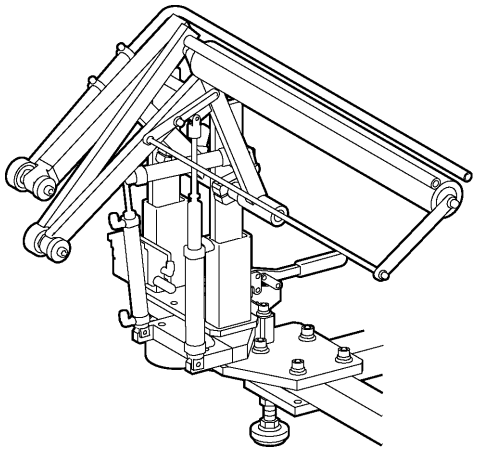
4-1. Bar stacker

Advanced edition or popular edition can be chosen for the bar stacker.

Modes can be changed in advanced edition bar stackers.

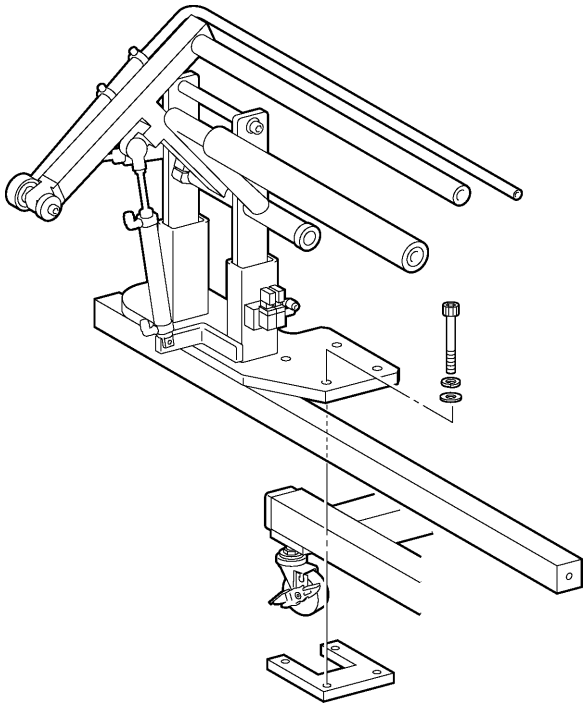
Refer to the manual for its installation or setting.

<Advanced edition>



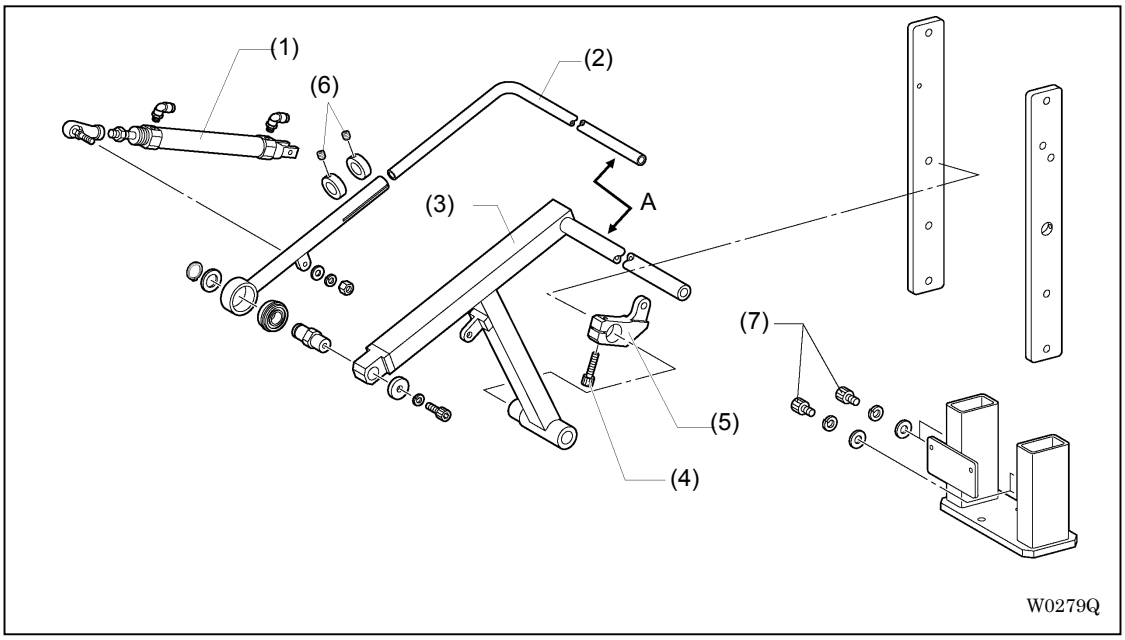
W0274Q

<Popular edition>



W0275Q

4-1-1. Adjustment



1. Adjust it so that brushing pipe (2) is aligned with clamp link (3) when cylinder (1) is returned. Clamp link (3) also should reach below sub-table so that a cloth can cover it.

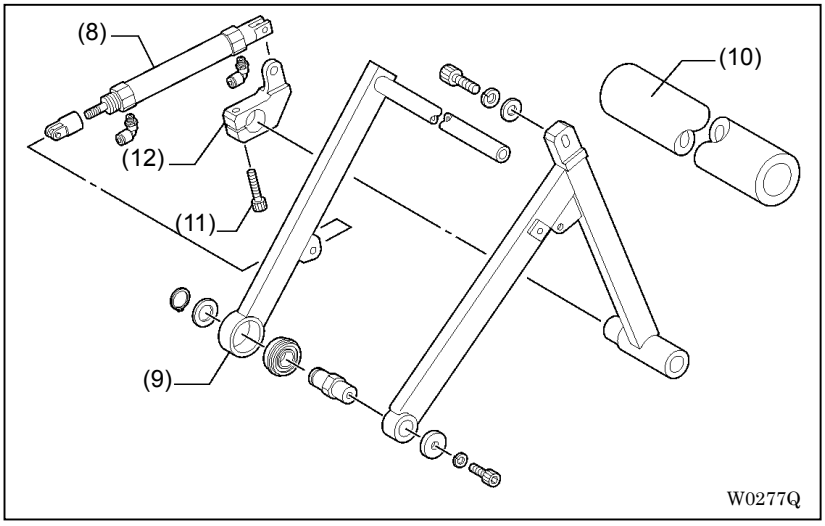
   Loosen adjusting bolt (4) and rotate cylinder holder (5) for the adjustment.

* For popular edition stackers, the distance A between brushing pipe (2) and clamp link (3) has to be 10 mm in addition to the adjustment above. Loosen set screw (6) for the adjustment.

2. Take notice that brushing pipe (2) does not hit sub-table when it is moving.

   Loosen adjusting bolt (7) and move the stacker up and down for the adjustment.

   [Note] Brushing pipe (2) and clamp link (3) do not reach below sub-table if the stacker is set too high.



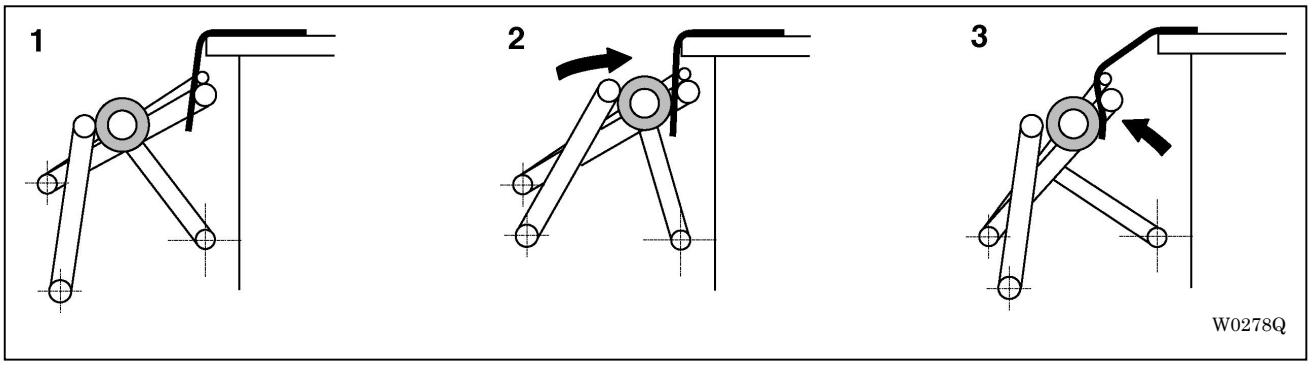
3. For advanced edition stackers, adjust it so that clamper link (9) presses rubber plate(10) firmly when cylinder (8) is returned.

   Loosen adjusting bolt (11) and rotate cylinder holder (12) for the adjustment.

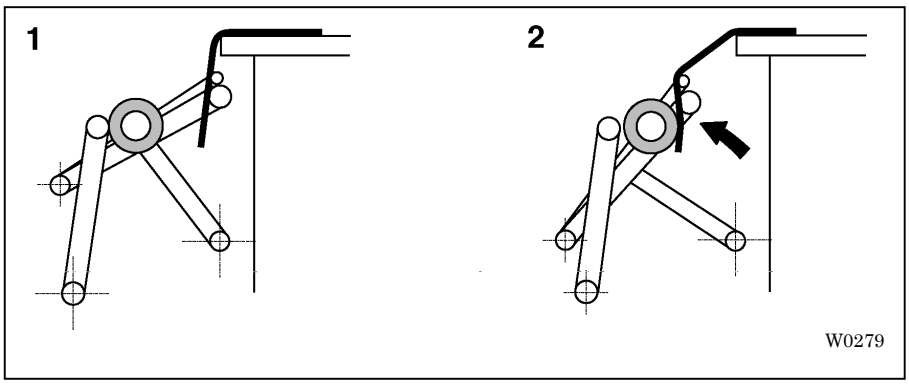
4. Adjust the speed controller of the air valve for smooth movement of links.

4-1-2. Adjustment for mode switching

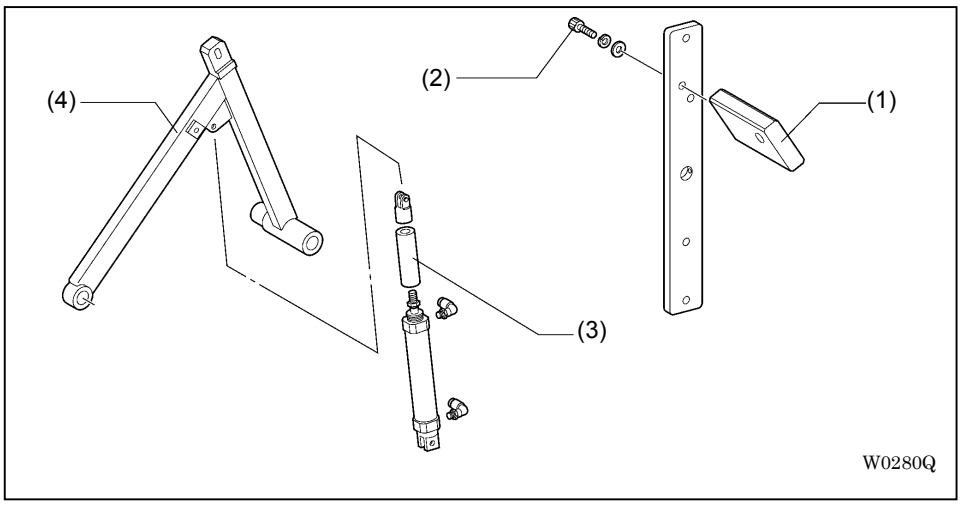
<7 steps (with moving stack board)>



<6 steps (with fixed stack board)>



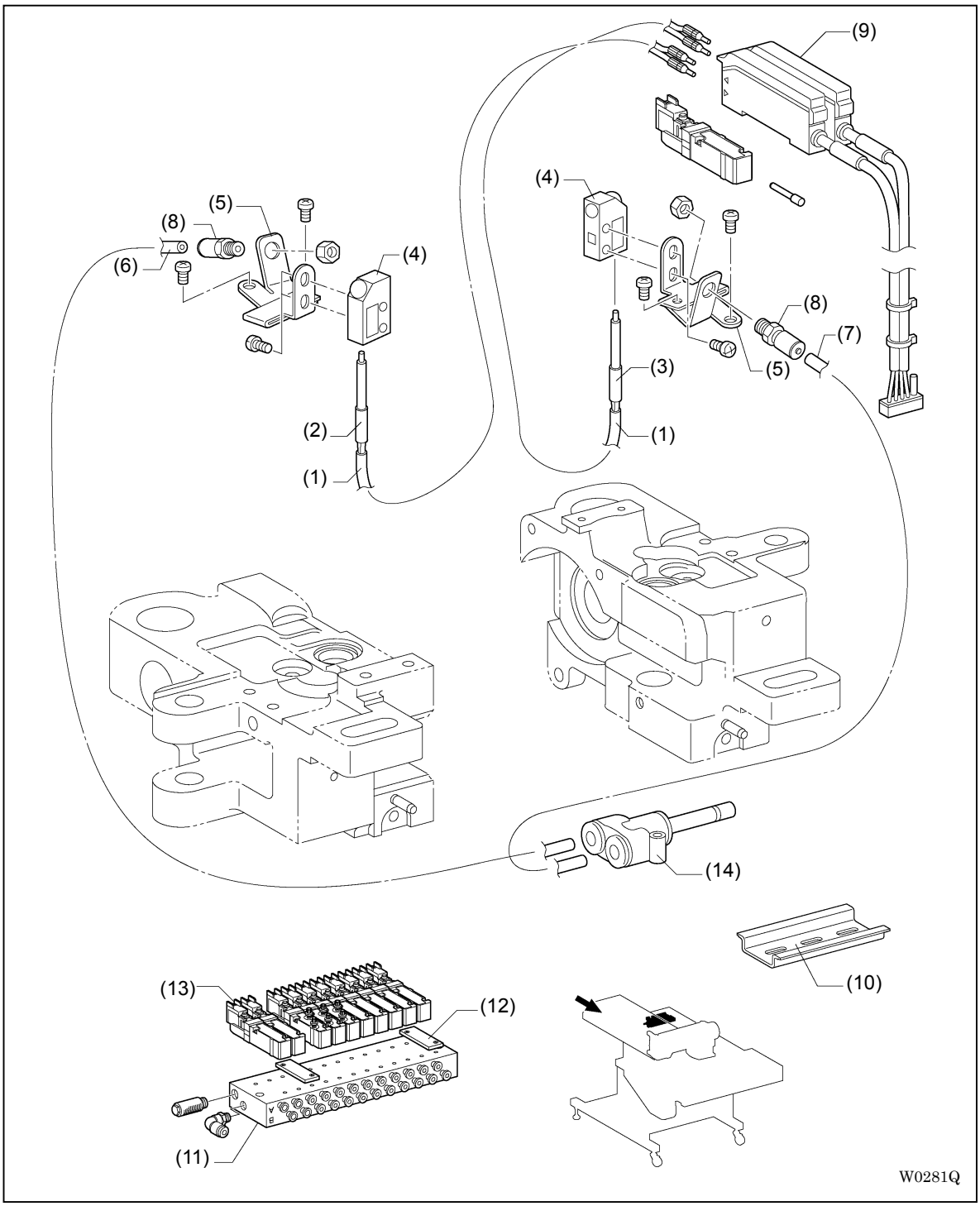
<Switching to 6 step mode>



1. Attach stopper block (1) by bolt (2).
2. Attach stopper collar (3).
3. With air filled, rotate bolt (2) to adjust the standby position of the fixed roller link (4).
4. On the operation panel, change the operation mode of the stacker to “1”.

4-2. Lower thread detection

4-2-1. Attachment



1. Let the left part of fiber cable (1) through vinyl tube [950 mm] (2), and the right part through tube [700 mm] (3) respectively.
2. Entwiset fiber cable (1) until its tip reaches the bottom of side lens (4).
3. Attach air hose [850 mm] (6) to the left and [800 mm] (7) to the right of hose nipple (8), then attach side lens (4) to sensor holder (5).

4. Attach sensor holder (5) to the rotary hook base so that the jut on its sensor bottom fits in the positioning hole on the rotary hook base.

5. Attach amplifier (9) to DIN rail (10) (Optional part in BAS-6150 model) on the head. Joint the connector to No.P14 connector on the control box.

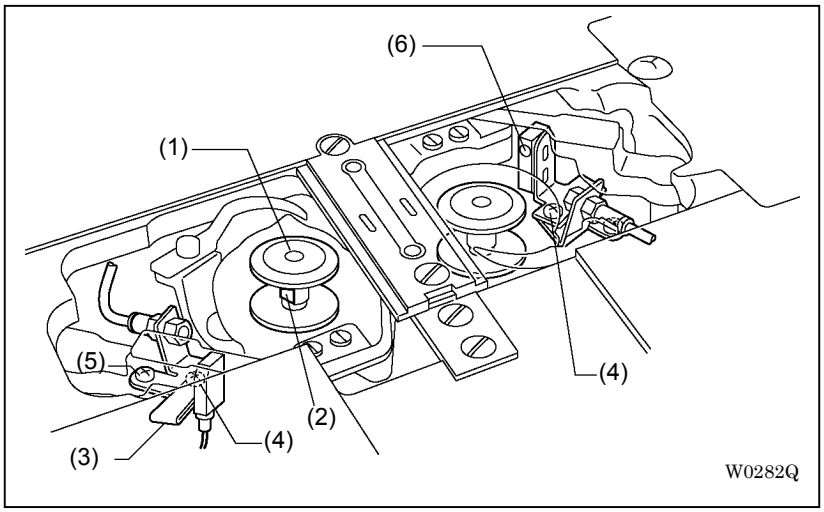
6. Pick up the fiber cable [Left side] (1), insert the light emission side fiber (with black sleeve) to the upper side of the amplifier [BL side] (9), and also insert the light receiving side fiber (with gray sleeve) to the lower side of the amplifier. Then pick up the right side fiber cable and insert it in the same way.

7. Replace blanking plate (12) and valve (13) of manifold (11).

8. Insert 2 air hoses of (6) and (7) to union (14), then connect it to the port No. 1A of manifold (11).

* Lead those air hoses and fiber cables under the rotary hook base to pass through the space between oil pans.

4-2-2. Adjustment and cleaning



<Adjustment> Adjust as follows with the power on :

1. Put an empty bobbin dedicated to lower thread detection (1) and adjust it so that its reflective surface (2) reflects the light.

2. Adjust the position of sensor holder (3) to where the value of the amplifier gets higher than 2000.

   Rotate adjusting screw (4) to adjust the vertical position. After the adjustment is completed, spread screw locking glue on the A part to fix it.

   Loosen fastening screw (5) to adjust the horizontal position.

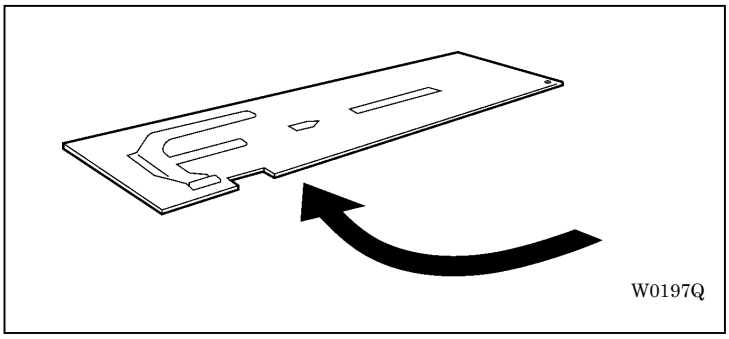
<Lens cleaning> Be sure to clean lens (6) of the sensor every day to keep its sensitivity using air guns etc., or by wiping it with soft cloth.

4-2-3. Amplifier setting

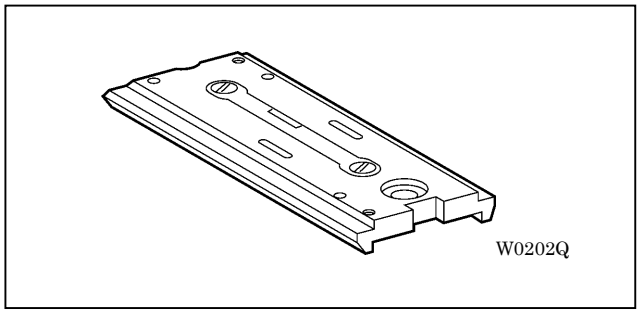
Refer to “3-5-3. Flap sensor (amplifier) setting”.

5. Gauge replacement

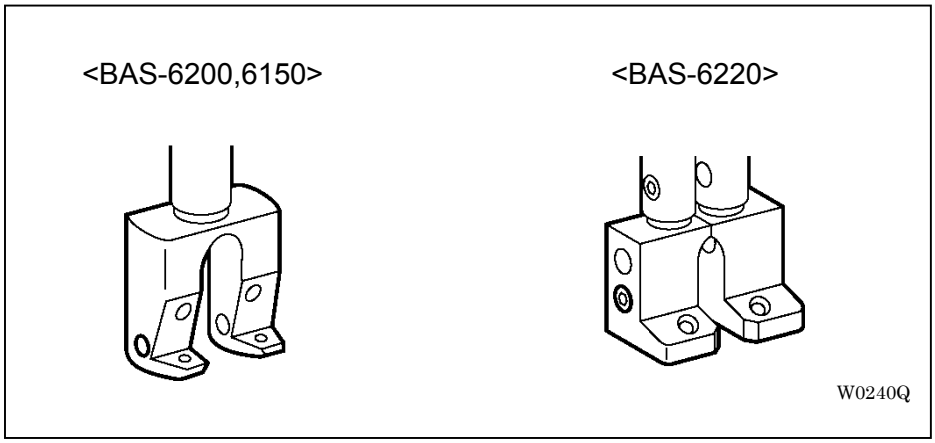
1. Detach the cloth slide plate. (Refer to “2-3. How to raise the head”)



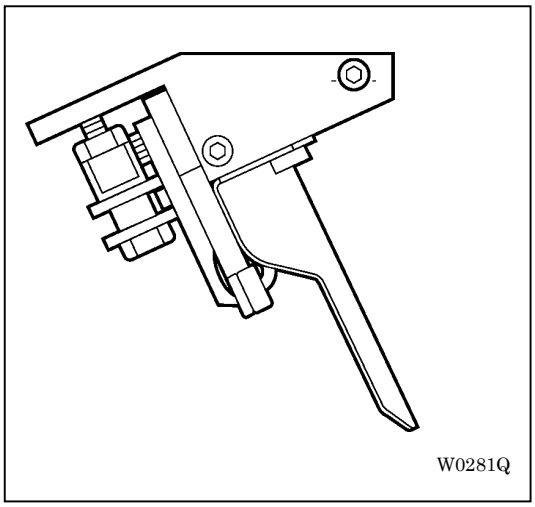
2. Detach the needle plate. (Refer to <Replacement of the fixed knife> of “3-8-1. Replacement of the center knife and pressure adjustment”)



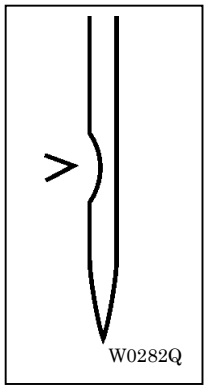
3. Detach the upper thread trimming and replace the needle clamp. (Refer to “3-1-1. Replacement of the needle holder”)



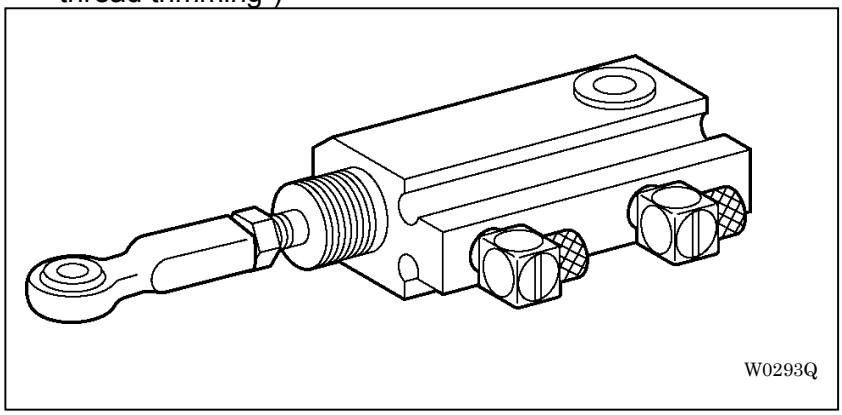
4. Replace the movable knife, fixed knife and thread holding plate. (Refer to “Replacement and adjustment of upper thread trimming related”)



5. Raise the head. (Refer to “2-3. How to raise the head”)
6. Detach the oil pan. (Refer to “2-3. How to raise the head”)
7. Adjust the clearance between the needle and the rotary hook blade top. (Refer to “3-1-3. Clearance adjustment of the needle and the rotary hook”)

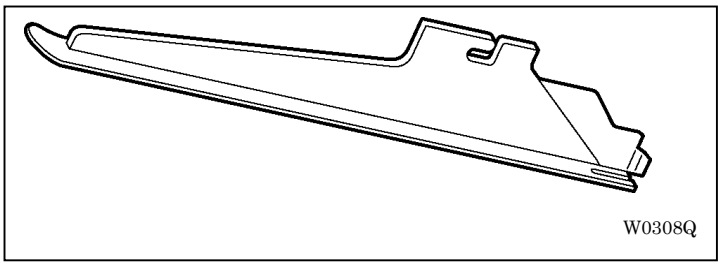


8. Adjust the position of the lower thread trimming cylinder. (Refer to “3-3-2. Adjustment of lower thread trimming”)

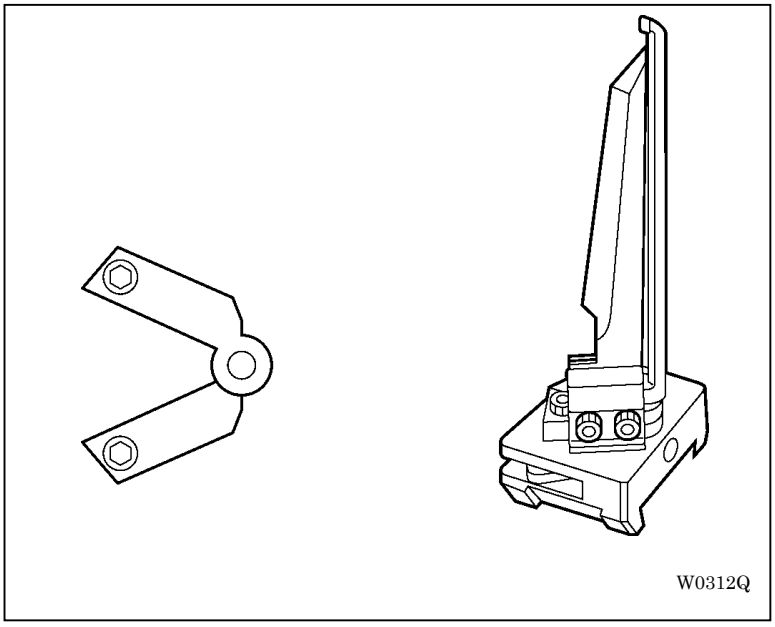


9. Put back the oil pan and the head.
10. Attach a new needle plate.
11. Attach the cloth slide plate. Some gauges also require replacement of the cloth slide plate.
12. Replace the binder. (Refer to “How to set double and single welting” of the manual)

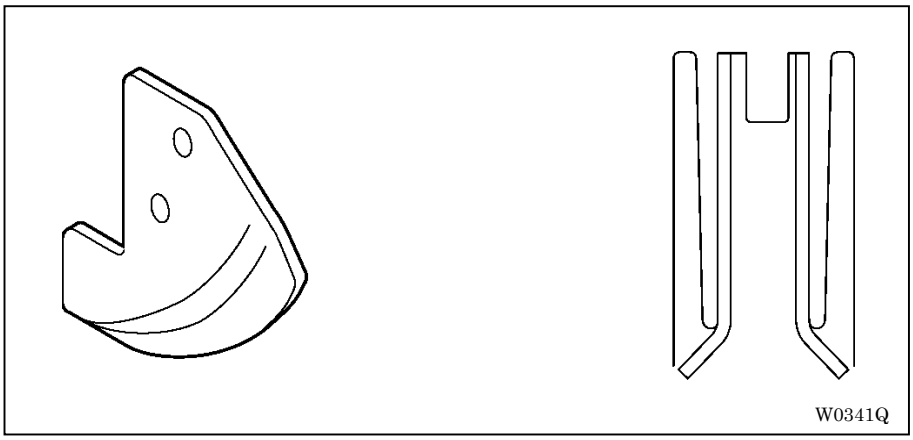
* Replacement steps of BAS-6200 and 6220 models differ from that of BAS-6150 model.



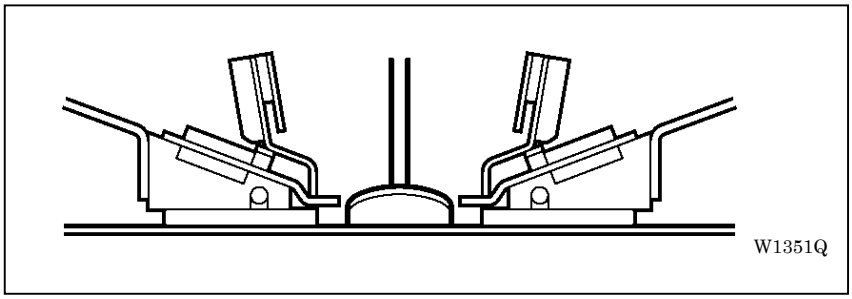
13. Adjust the opening width of the corner knife. (Refer to “3-6-2. Fine adjustment of the corner knife”)



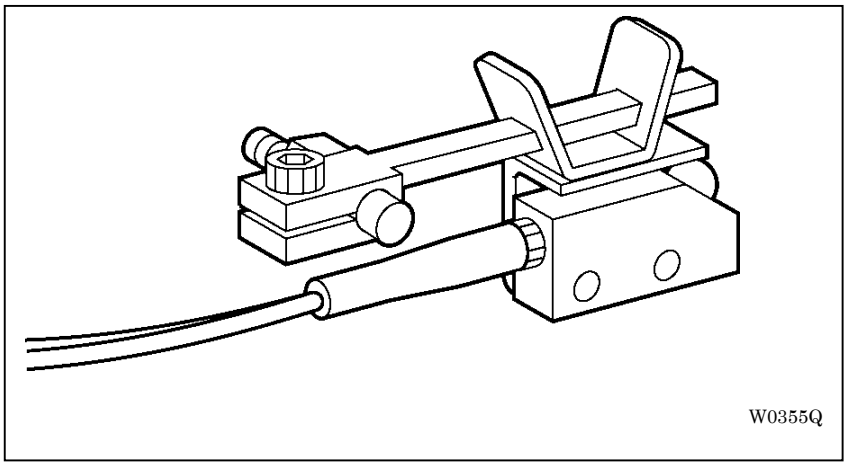
14. Change the width of the cloth guide. (Refer to “3-7-1. Adjustment of the cloth guide”)



15. Adjust the width of the carriage feed. (Refer to “3-4-3. Width adjustment of the carriage feed”)



16. Adjust the position of the flap sensor. (Refer to “3-5-2. Position adjustment of the flap sensor”)



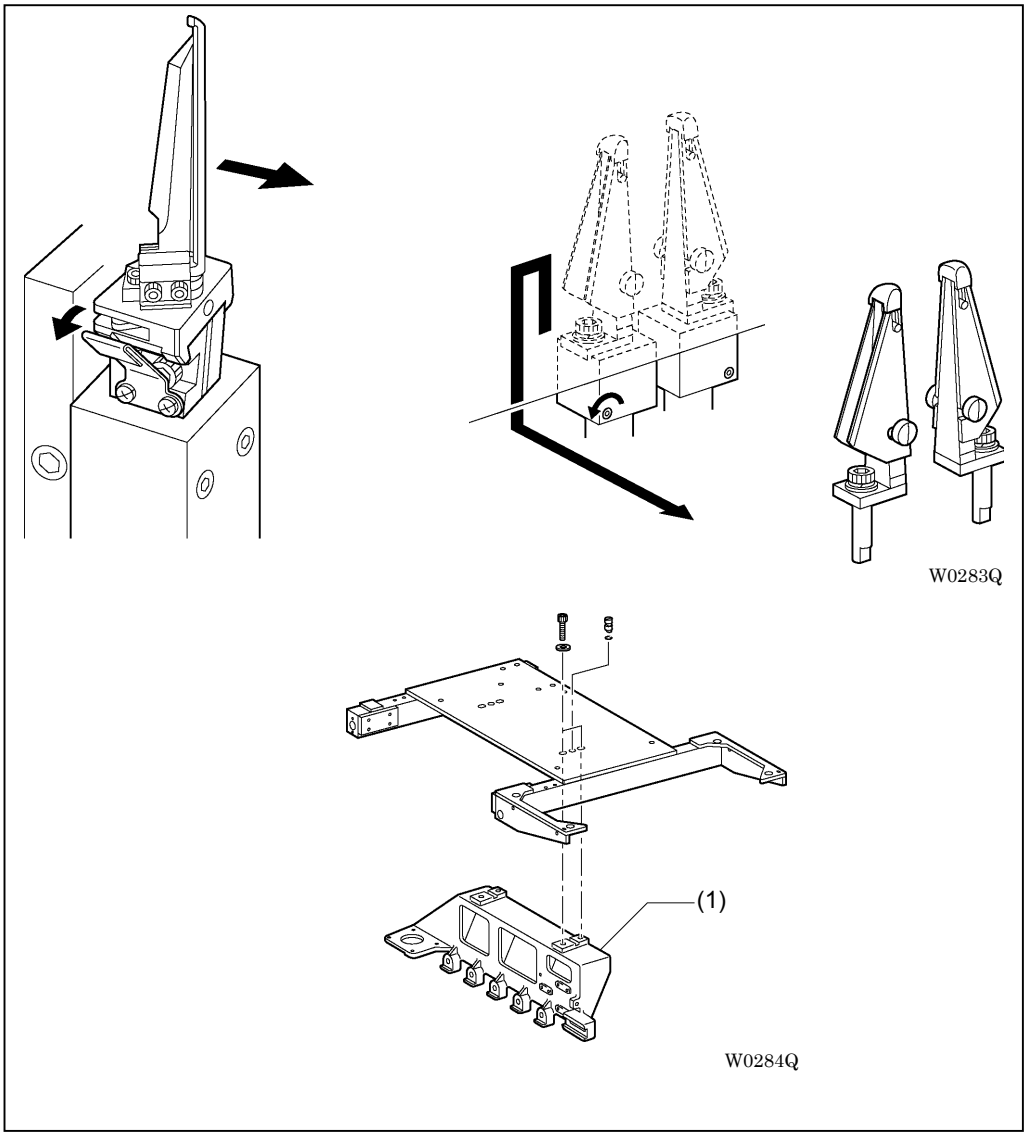
17. Change the gauge setting on the operation panel.

    Choose “Gauge setting” in the system setting menu in BAS-6200 and 6220 models, and choose “Gauge width” in the environmental setting menu in BAS-6150 model.

6. Disassembly, assembly and adjustment

6-1. Corner knife mechanism

6-1-1. How to detach the corner knife unit

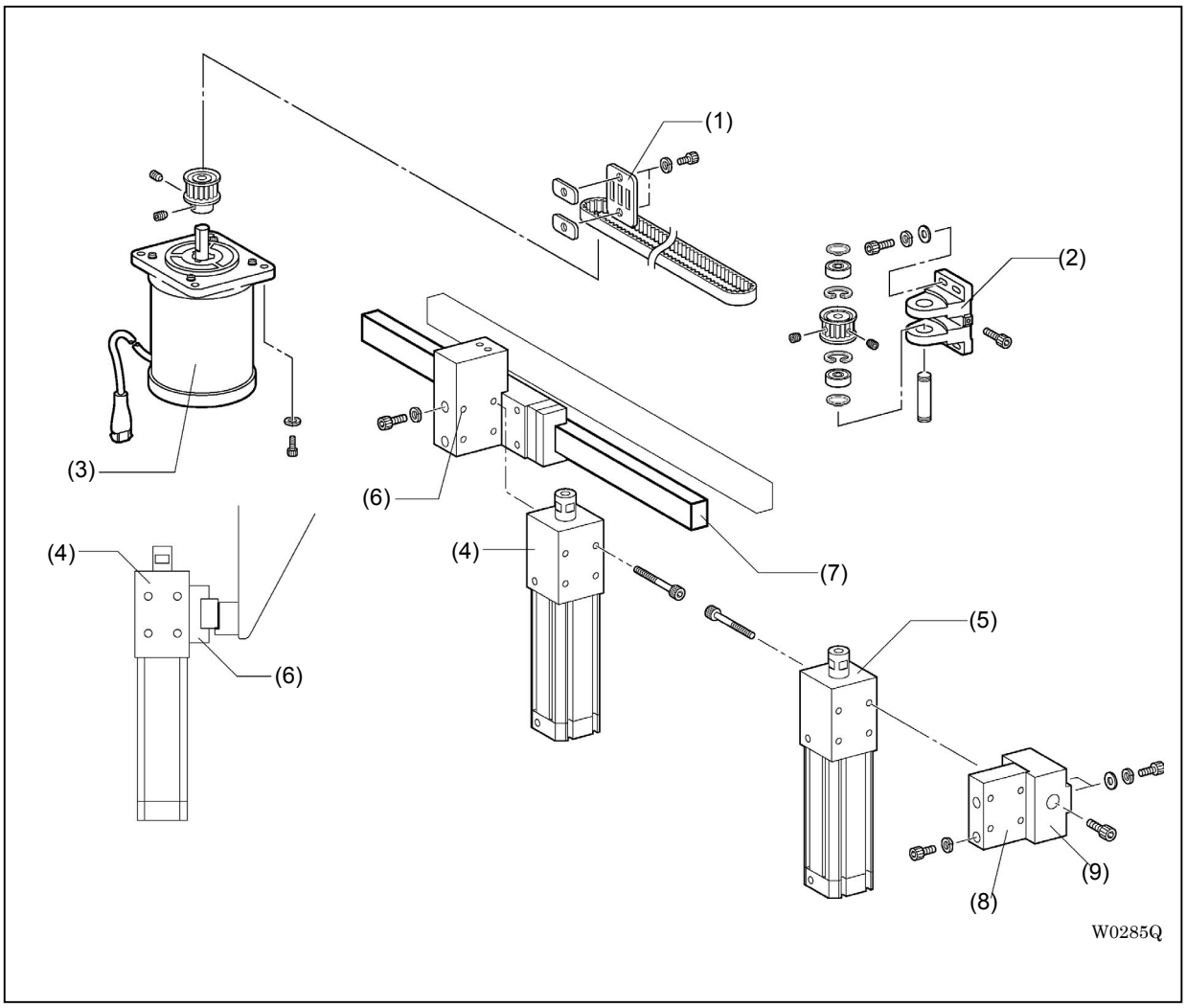


It will become easy to work if the corner knife table is removed. (Refer to “3-6-5. Replacement of the corner knife table”)

1. Detach the corner knife.
2. Detach the cloth slide plate.
3. Disconnect all parts connected to the corner knife unit such as air hoses and connectors.
4. Support the rail board (1) from below and detach the adjusting bolt, then dismount the corner knife unit.

   [Note] Operate those works by two or more persons due to the heavy weight of the corner knife unit.

6-1-2. Disassembly and assembly of the corner knife unit



<Disassembly>

Disassemble in the following order:

Belt holder (1) X pulley base B (2) Pulse motor X assy (3) Cylinder assy on the left (4) Cylinder assy on the right (5) Cylinder support L (6) Linear guide (7) Cylinder support R (8) Fixing block (9)

<Assembly>

Assembly goes in reverse order to disassembly. Follow the below for position adjustment:

A. Align linear guide (7) with the mating face of the rail board.

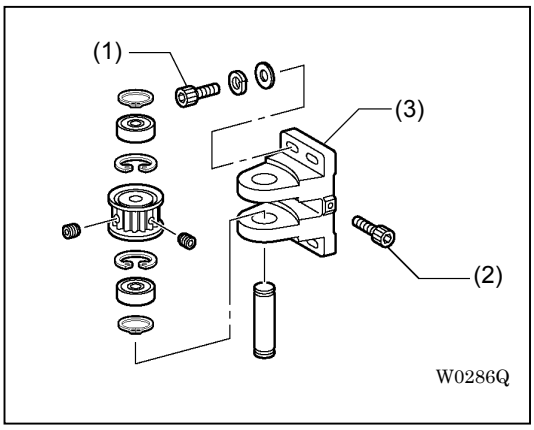
B. Align cylinder support L (6) with the top face of carriage on the linear guide.

C, D. Align the top face of cylinder support R (8) with the fixing block (9), and also align the right side of it with the shoulder.

E. Align the back side of the left cylinder assy (4) with the front face of carriage on the linear guide.

F. Align the back side of the right cylinder assy (5) with the front face of fixing block (9).

6-1-3. Tension adjustment of the timing belt

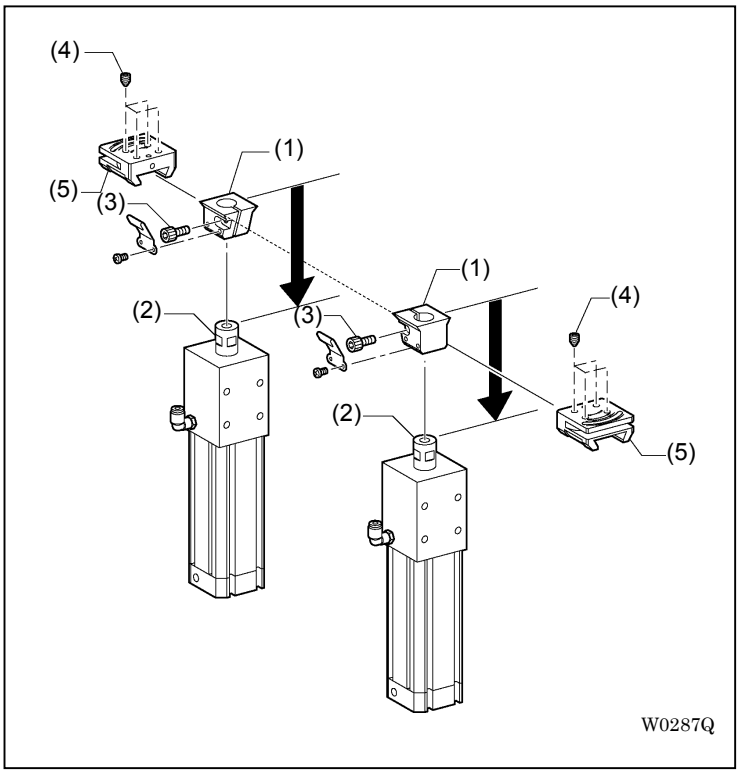


The deflection should be 10 ± 1 mm to the power of 10 N pushing at the center of the timing belt.

Loosen adjusting bolts (1) (4 pieces), rotate adjusting bolt (2) and move X pulley base B (3) to adjust it.

* Adjust the deflection to be 65 ± 5 Hz if a belt tension meter (Clavis type) is used.

6-1-4. Adjustment of the corner knife base (BAS-6200 and 6220)

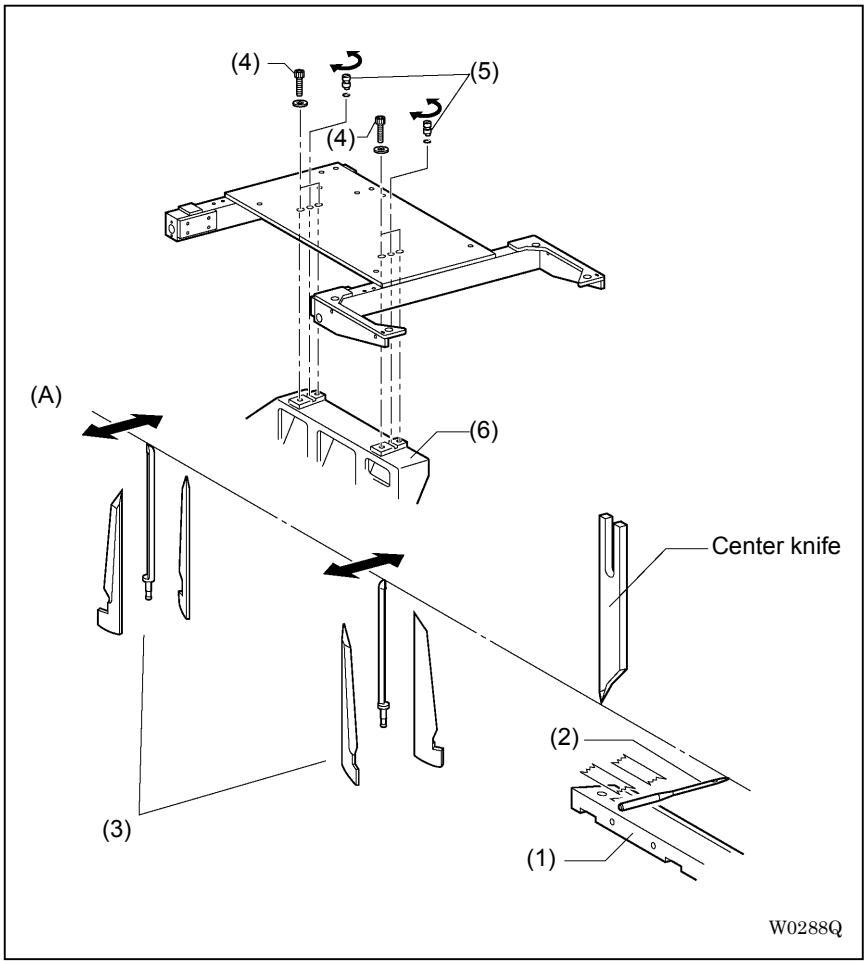


1. Align the top face of connecting block (1) to the same height with the tip of cylinder rod (2).
2. Loosen adjusting bolt (3) to align leading edges of connecting blocks (1) on the left and right.
3. Spread a screw locking glue on clamping screws (4) (4 pieces on one side), and attach those screws to corner base (5) then rotate them back respectively by 90 degrees from the contact point with connecting block (1).

   After the attachment is completed, confirm that corner knife base (5) can slide smoothly without rattle.

6-1-5. Parallelism adjustment between the corner knife unit and the feeder

Align the centers of the center knife and the corner knife. Also align the corner knife parallel to the feeder's moving direction.



1. Put a needle(2) on the carriage feed(1).

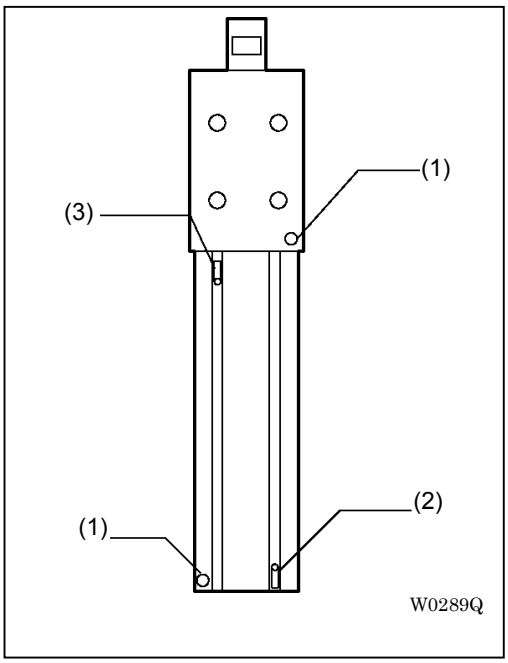
* Adjust the needle tip to be aligned with the center line A of the center knife.

2. Adjust the center of the corner knife(3) to be aligned with the center line of the center knife in both the farthest position and the closest position to the needle hole.

   Loosen adjusting bolts (4) (4 pieces) by about a half turn and rotate eccentric pin (5) for the adjustment.

* BAS-6150 model does not have the eccentric pin. Pat on the rail board(6) or somehow to adjust the position for the model.

6-1-6. Adjustment of the cylinder



<Adjustment of the damper>

Adjust it so that the impact on the stroke end of the cylinder can be reduced.

Rotate screw (1) back by one turn from its full close position.

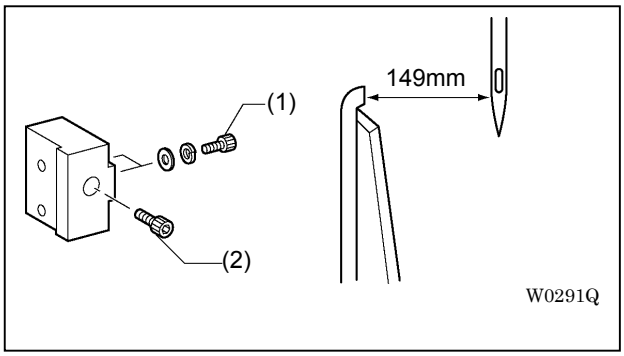
<Adjustment of the sensor position (BAS-6200 and 6220)>

Adjust the sensor position so that the cylinder movement can be watched steadily.

Loosen screws of each sensor and adjust those positions so that lower sensor (2) turns on when the cylinder rod goes down, and that upper sensor (3) turns on when the rod goes up.

6-1-7. Home position of the corner knife

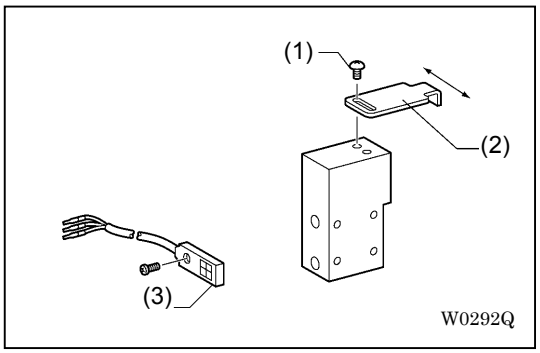
<Position of the corner knife on fixed side>



Adjust the clearance between the corner knife tip on fixed side and the needle down position to be 149 mm.

Loosen adjusting bolts (1) (2 pieces), then hold adjusting bolt (2) down and rotate it to right and left for the adjustment.

<Home position of the corner knife on movable side>



1. Turn off the power and turn on the dip switch B-8 on the main PCB.
2. Turn on the power.

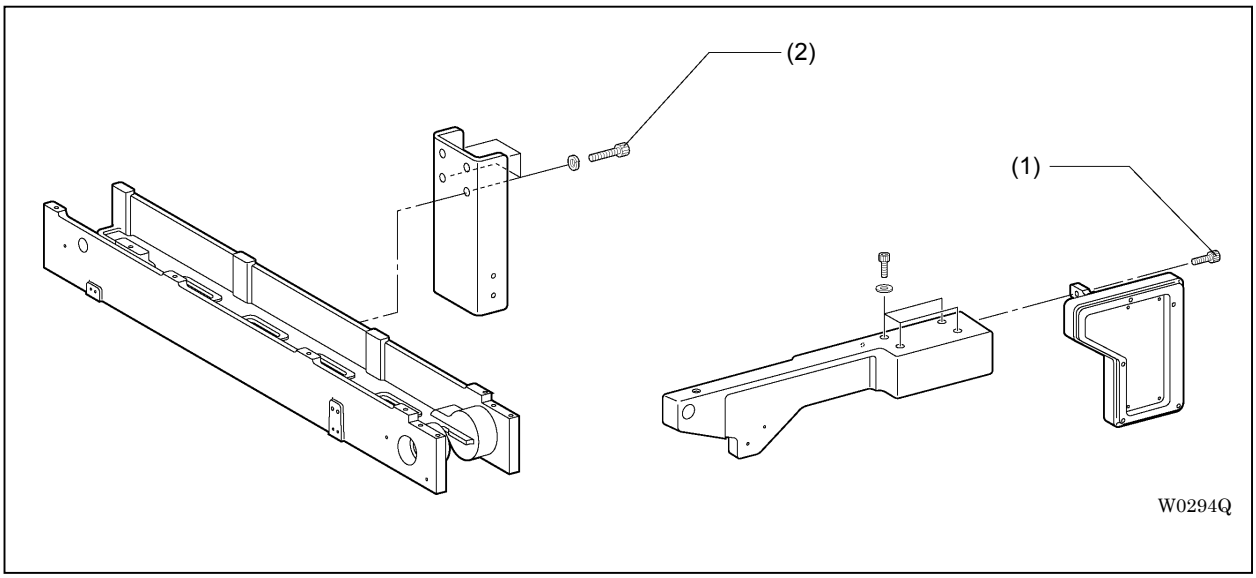
For BAS-6200 and 6220 models, follow the instructions on the operation panel for the adjustment. For BAS-6150 model, adjust as follows:

Operations are the same in all models but the instructions on the operation panel differ among them.

3. The operation panel shows a message of “C.H.P”. Set the distance between two corner knives to 0 mm then press “ENTER”.
4. The operation panel shows a message of “STrT” blinking. Press the start switch.
5. The motor starts and the operation panel shows a message of “SnSr”. Loosen fastening screw (1) and adjust sensor dog (2) to the direction of arrow as illustrated. Fix sensor dog (2) in the position where sensor (3) changes to ON from OFF. Press “ENTER”.
6. The operation panel shows a message of “STrT” blinking. Press the start switch and the home position detection of the corner knife will be performed.
7. Turn off the power and turn off the dip switch B-8 on the main PCB.

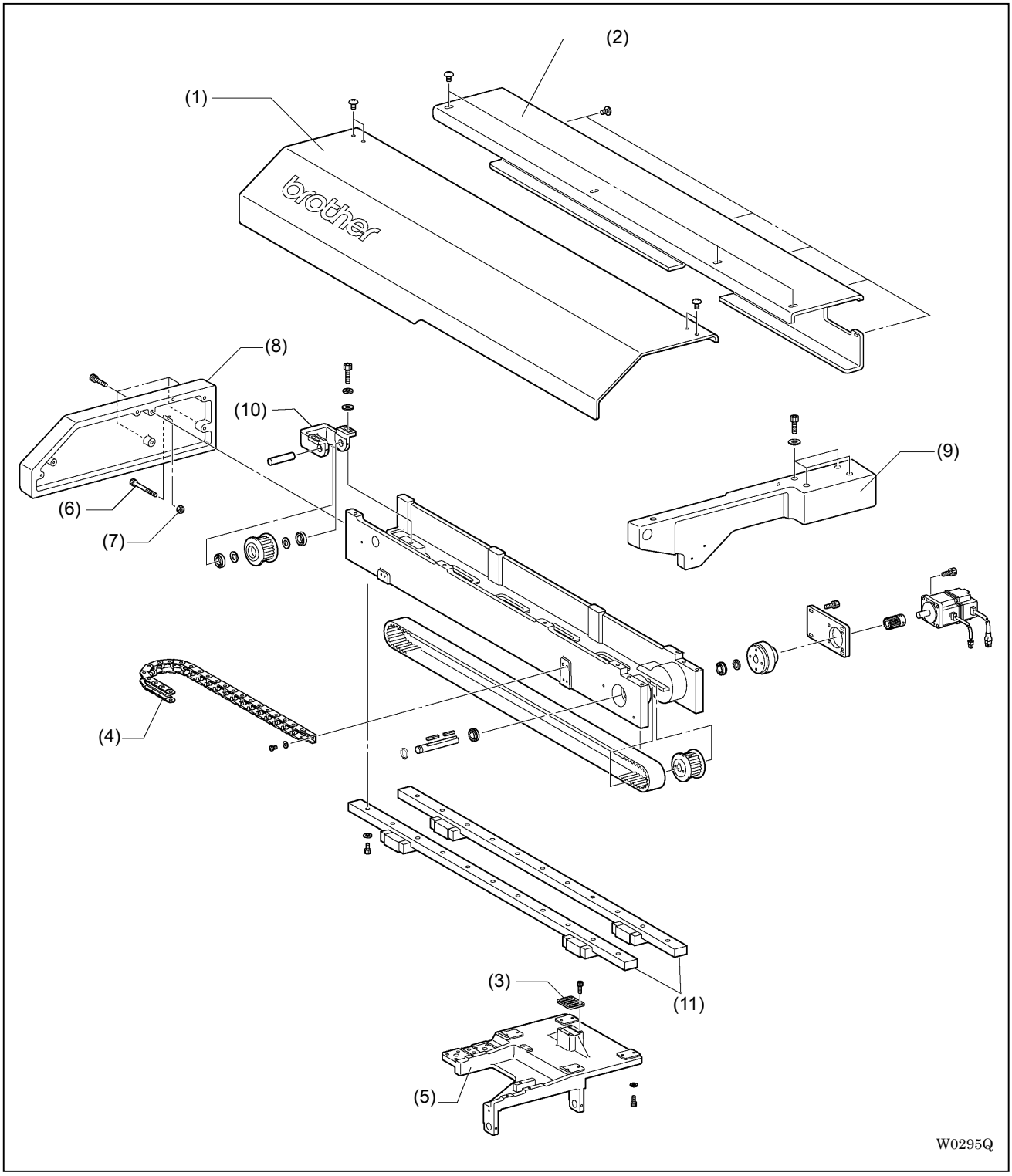
6-2. Feeding device

6-2-1. How to detach the feeding device



1. Detach air hoses and cables.
2. Detach the cloth slide plate and sub table R.
3. Detach adjusting bolt (1) and adjusting bolts (2) (4 pieces) and dismount feeding device from the main body.

6-2-2. How to detach the pulley board



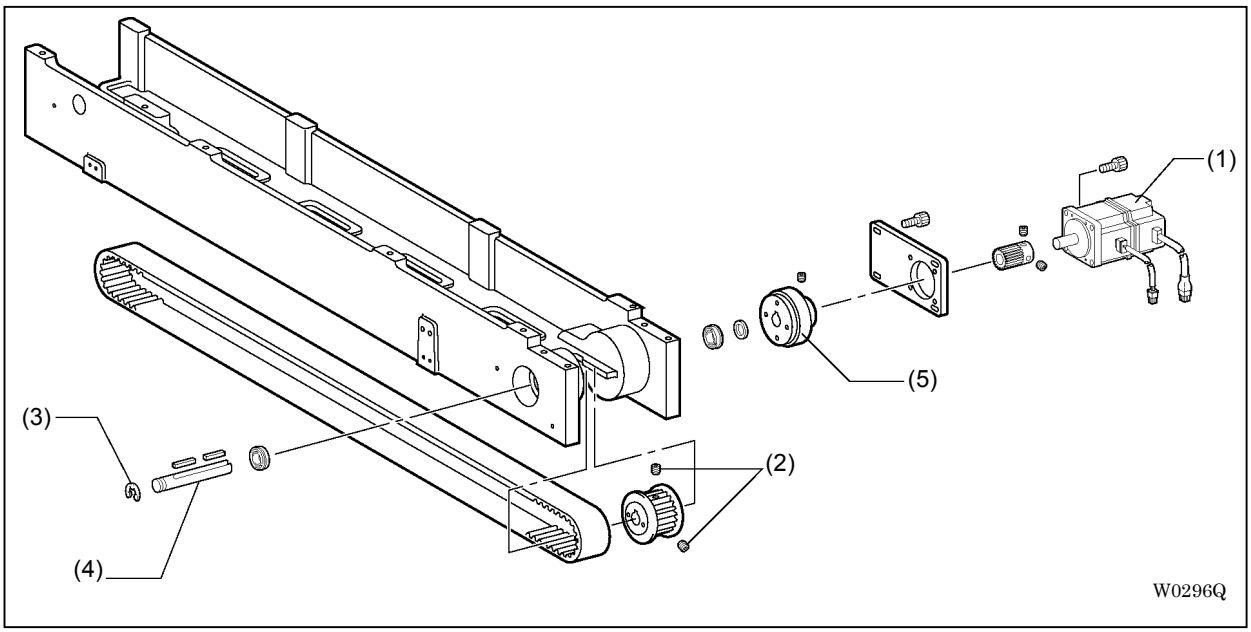
Detach in the following order:

Cover (1) Rear cover (2) Belt holder (3) Runner flex (4)

Carriage feed bracket (5) Adjusting bolt (6) Nut (7) Feed bracket cover L (8)

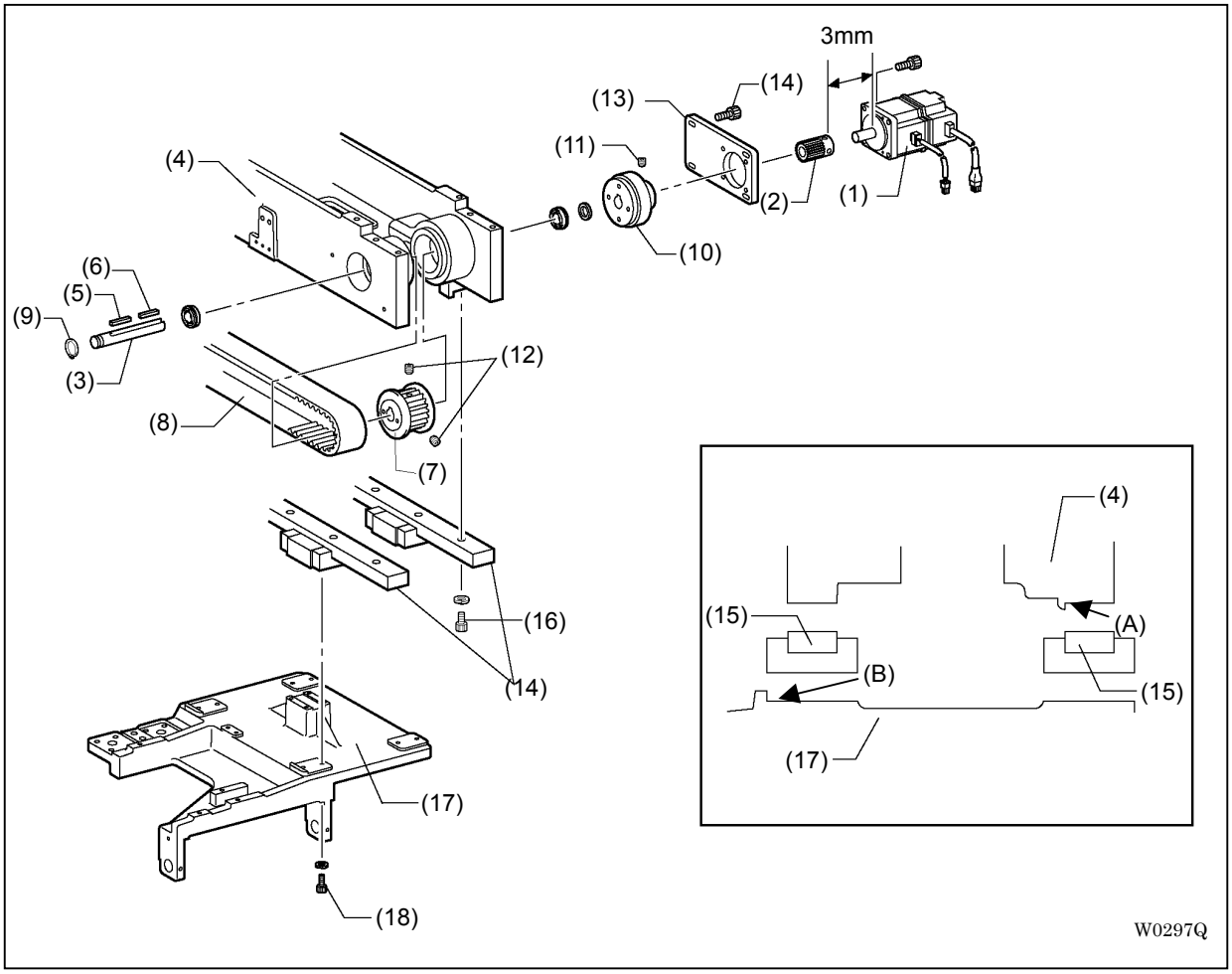
Feed bracket cover R (9) Pulley setting bracket (10) Linear guide (11)

6-2-3. How to detach gears and belts



1. Detach servo motor (1) with its setting plate.
2. Loosen set screw (2) of the timing pulley.
3. Detach retaining ring (3).
4. Tap on pulley shaft (4) at retaining ring (3) side to pull it out.
   [Note] Gear box (5) makes a set with the hub. Do not disassemble it.

6-2-4. Assembly of the feeding device



1. Adjust the distance between servo motor (1) and servo motor gear (2) to be 3 mm.
2. Assemble in the following order:

   Pulley shaft (3) Feed bar base (4) Key 5x35 (5) Key 5x30 (6)

   Timing pulley (7) Timing belt (8) Retaining ring (9)
3. Attach gear box (10) to pulley shaft (3) and adjust its direction so as not to rattle, then fix it with set screw (11).

* Put the tool through the hole on feed bar base (4).

4. Fix timing pulley (7) with set screws (12) (2 pieces).
5. Grease servo motor gear (2).

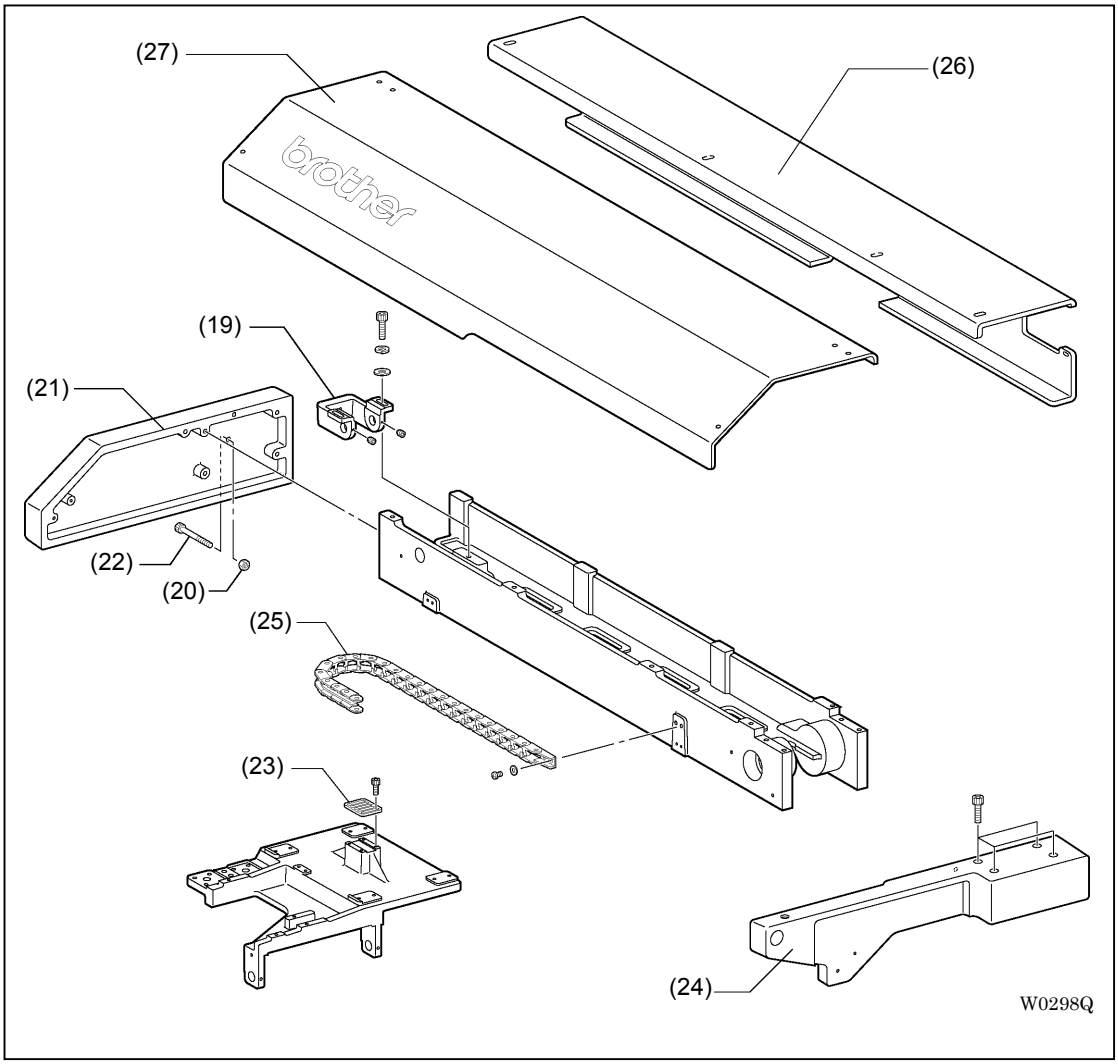
   Attach servo motor setting plate (13) to feed bar base (4) together with servo motor (1).

   Adjust servo motor gear (2) and the gear of gear box (10) to be meshed closely, and fix with adjusting bolts (14) (4 pieces).

* Excess pressure on gears may cause frictional wear.

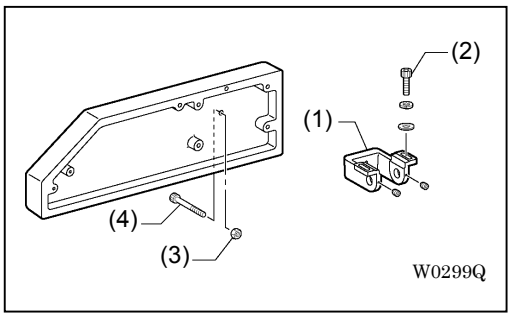
6. Put one of linear guide (15) on the mating face A of feed bar base (4) and the mating face B of carriage feed bracket (17) to fix them.

   Keep moving carriage feed bracket (17) to fix the other linear guide (15) with adjusting bolt (16) and (18). After the attachment, confirm that carriage feed bracket (17) can move smoothly.



7. Attach in the following order:
   Pulley setting bracket (19) Nut (20) Feed bracket cover L (21) Adjusting bolt (22)
   Belt holder (23) Feed bracket cover R (24) Runner flex (25)
   Rear cover (26) Cover (27)

6-2-5. Tension adjustment of the timing belt



The deflection should be 10 mm to the power of 30 N pushing at the center of the timing belt.

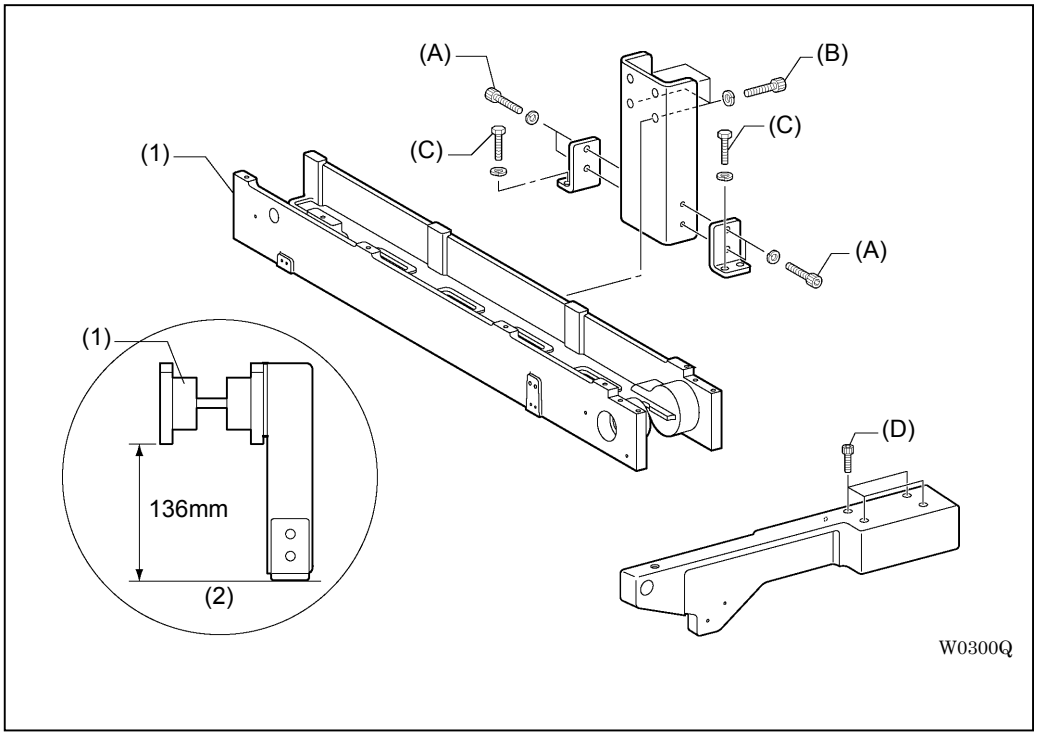
Loosen adjusting bolts (2) (2 pieces) and nut (3) to rotate adjusting bolt (4) for the adjustment.

* Adjust the deflection to be 38 ± 0.5 Hz if a belt tension meter (Clavis type) is used.

6-2-6. Parallelism adjustment of the feed bar

Adjust the feed bar so that it moves parallel to the binder or the corner knife.

* Be sure to adjust it every time the feeding device is detached.

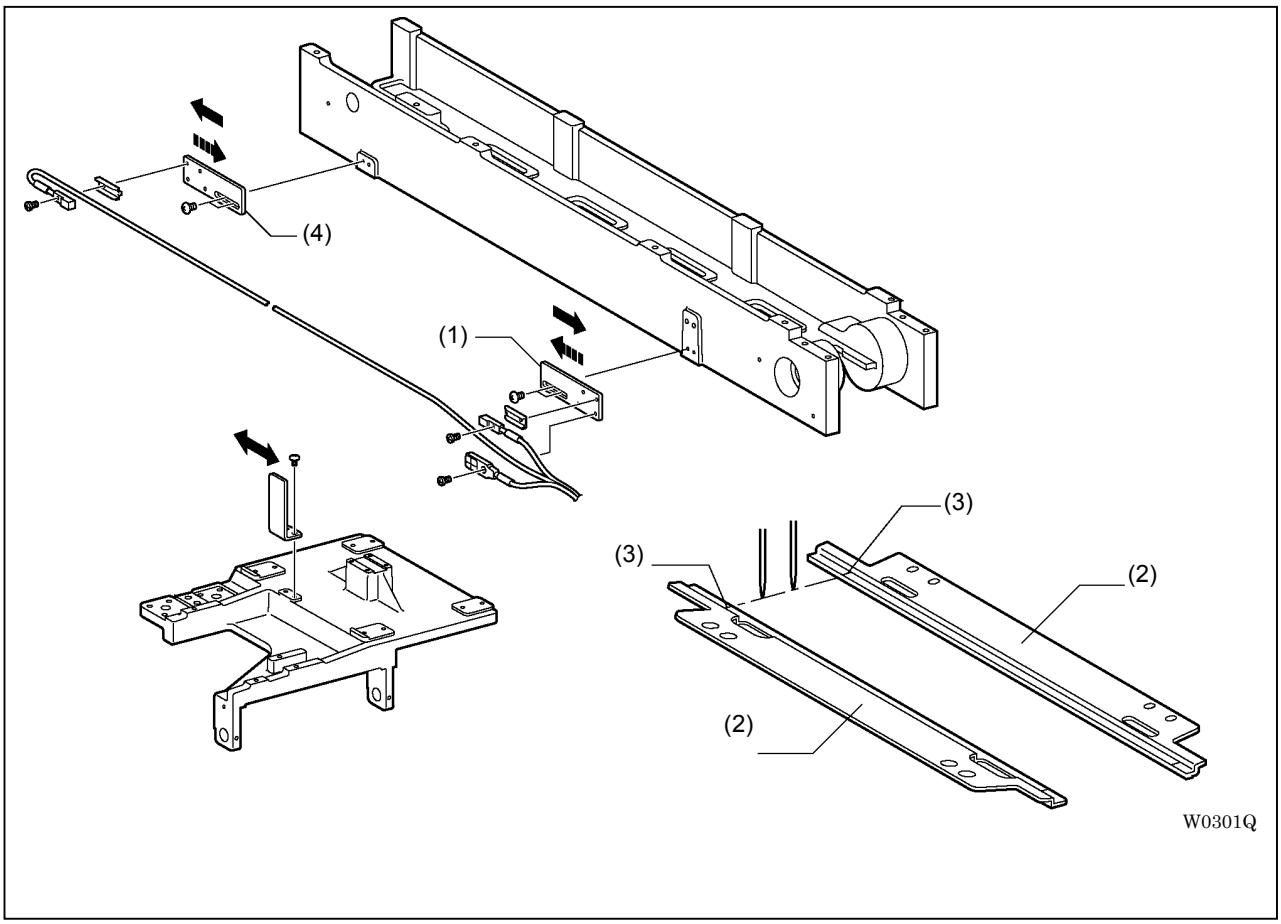


1. Loosen adjusting bolts A (4 pieces) to adjust the parallelism between the right and left of the carriage feed.
2. Loosen adjusting bolts B (4 pieces) to adjust the parallelism between the fore and back of the feeding device.

   Adjust the height of feed bar base (1) and sub table (2) to be 136 mm.
3. Loosen adjusting bolts C (4 pieces) and D (4 pieces) to adjust the needle direction in the feeding device.

   Adjust the feeding direction to be square to the upper shaft of the machine.

6-2-7. Adjustment of the home position sensor and the over run sensor



1. Turn off the power and turn on the dip switch B-7 on the main PCB.
2. Turn on the power.

For BAS-6200 and 6220 models, follow the instructions on the operation panel for the adjustment.

For BAS-6150 model, adjust as follows:
Operations are the same in all models but the instructions on the operation panel differ among them.

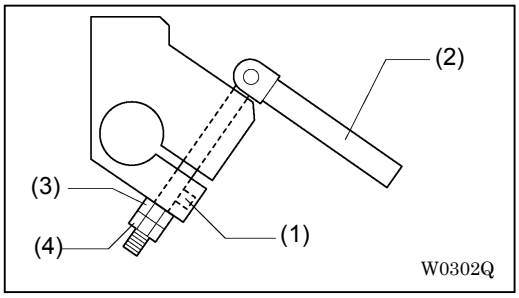
3. The operation panel shows a message of “H.P”. Slightly loosen the screw fixing the sensor setting plate (1) (home position sensor) to keep its free movement, then shift the plate to the right end.
4. Press “ENTER”. The operation panel shows a message of “STrT”.
5. Move the carriage feed by hand and adjust the back side marker (3) on folding plate (2) to be aligned with the needle down position.

* For easier operation, let out the air then lift up the flap clamp and the binder by hand.

6. Push the start switch. The carriage feed moves forward by 290 mm and the operation panel shows a message of “H.P.S”.
7. Move sensor setting plate (1) from the right to the left and fix it in a position where the sensor turns into on from off.
8. Press “ENTER”. The operation panel shows a message of “E.o”.
9. Slightly loosen the screw fixing the sensor setting plate (1) to keep its free movement, then shift the plate to the left end.

10. Press “ENTER”. The operation panel shows a message of “STrT”.
11. Press the start switch. The carriage feed moves backward by 290 mm and the operation panel shows a message of “E.o.S”.
12. Move sensor setting plate (4) from the left to the right and fix it in a position where the sensor turns into off from on.
13. Press “ENTER”. The operation panel shows a message of “STrT”.
14. Press the start switch. After the home position detection, the carriage feed moves to the recess position.
15. Turn off the power and turn off the dip switch B-7 on the main PCB.

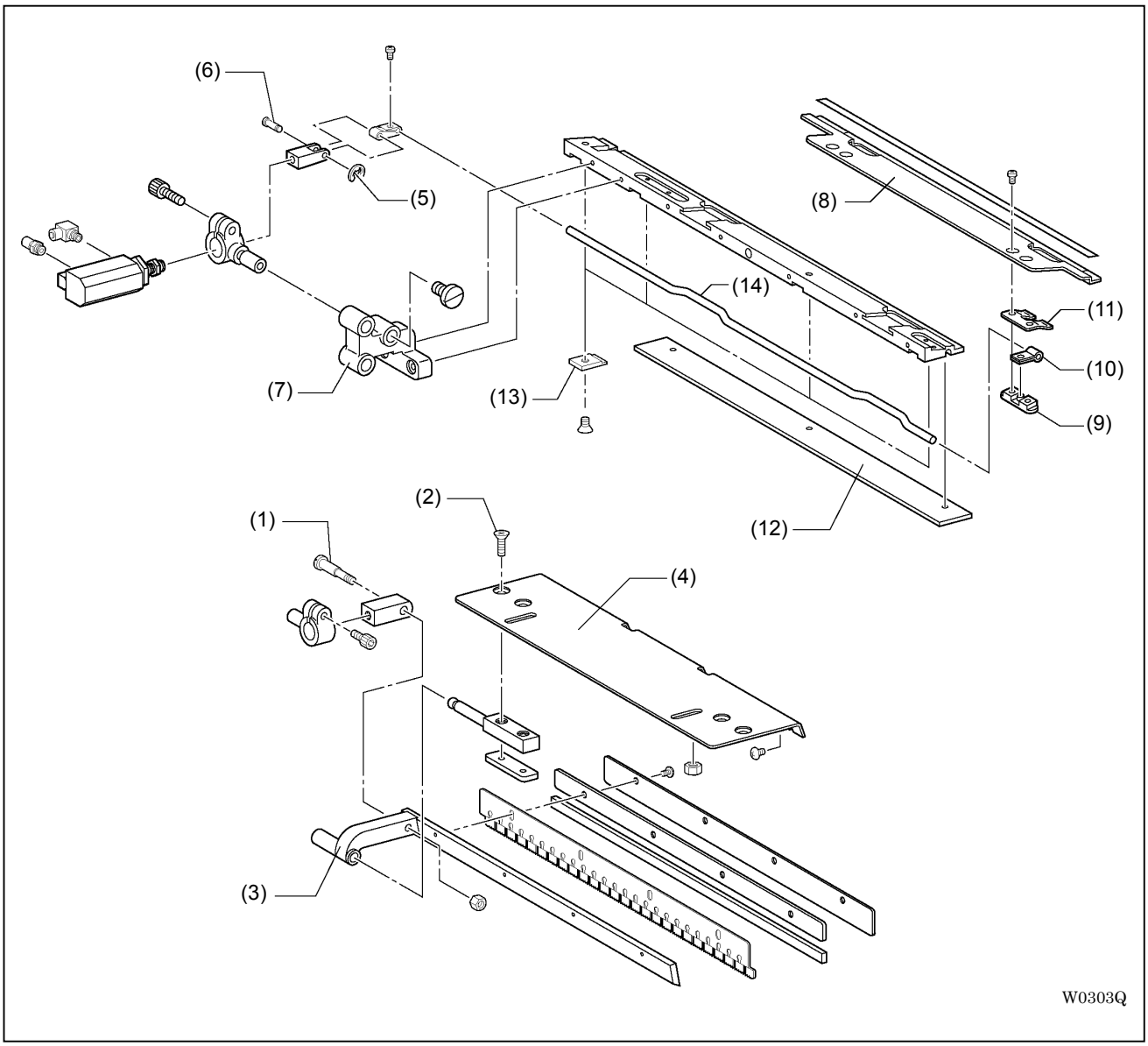
6-2-8. Adjustment of the cam lever



1. Loosen set screw (1).
2. With cam lever (2) pulled down, tighten the upper nut (3) at the power of 1.5 Nm. Also tighten the lower nut (4) to prevent loosing.
3. Fix the fastening rod by set screw (1).

6-3. Carriage feed and flap device

6-3-1. Disassembly of the carriage feed



1. Detach the carriage feed. (Refer to “3-4-2. How to detach the carriage feed and replacement of the rubber”)
2. Detach shoulder screw (1), flat head screws (2) (2 pieces) and flap clamp (3).
3. Detach in the following order:

   Auxiliary plate (4) Retaining ring (5) Pin (6) Cylinder support bracket (7)

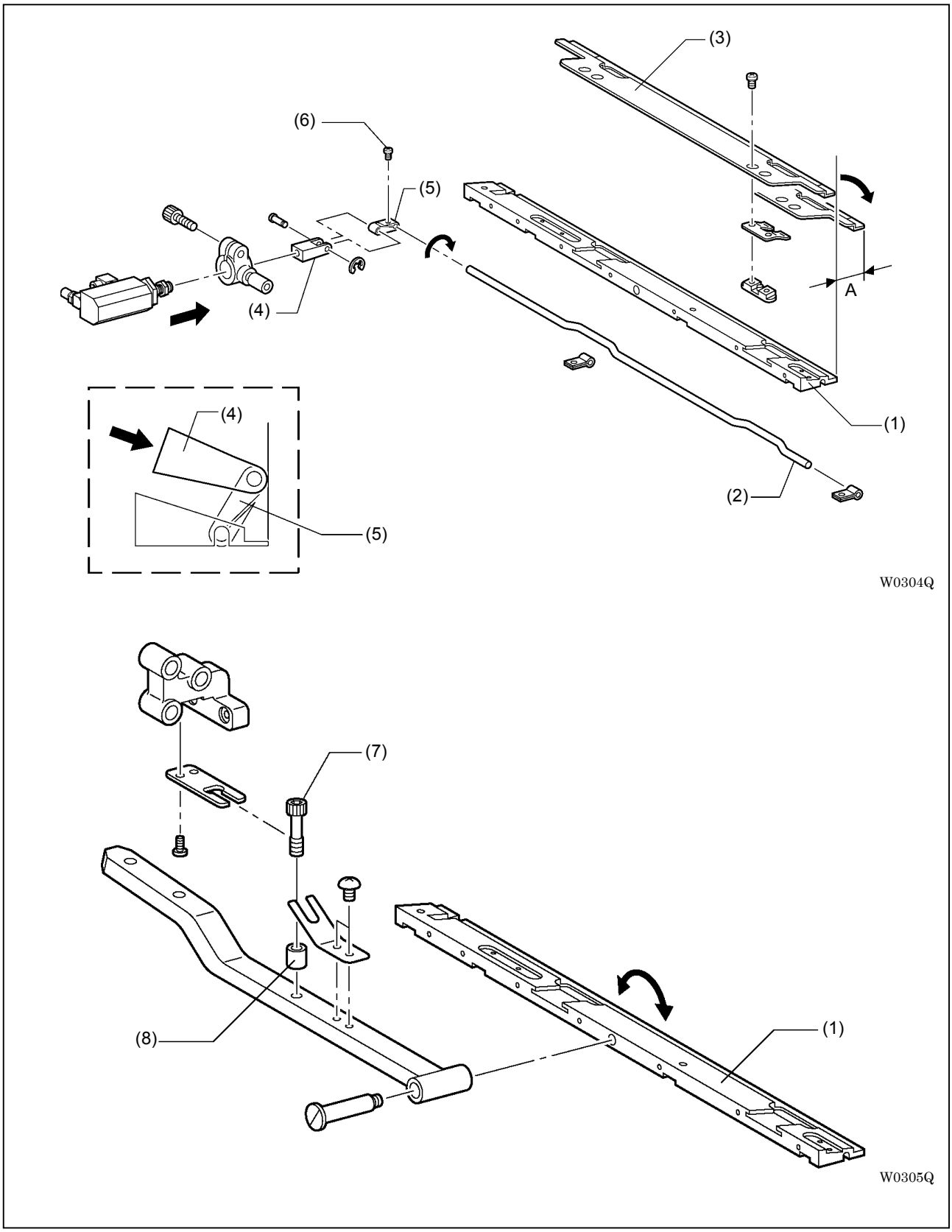
   Folding plate (8) Spring holder plate (9) Connecting spring (10)

   Link holding spring (11) Carriage feed rubber (12) Holder plate (13)

   Link shaft (14)

6-3-2. Assembly of the carriage feed

Assembly goes in reverse order to disassembly.



1. Spread grease on both the groove of carriage feed (1) and link shaft (2).
2. Adjust the position of folding plate (3) to satisfy the following conditions:

   Loosen fastening screw (6) of link lever (5) for the adjustment.

   Does not stick out from carriage feed (1) when the cylinder is pulled back.

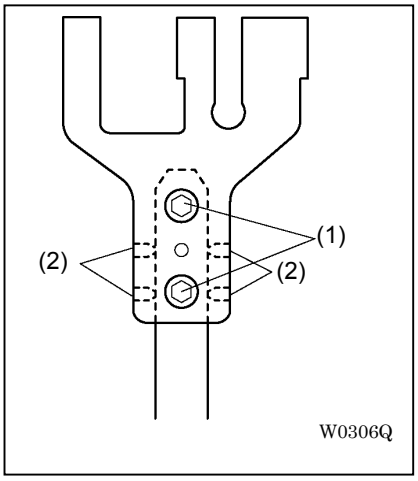
   The length A measured from carriage feed (1) is about 3 mm (2 mm or shorter if using 8 mm gauges) when the cylinder is pushed out.

   Joint (4) and link lever (5) do not stick out from the carriage feed when the cylinder is pushed out.
3. Adjust carriage feed (1) so that it swings smoothly without rattle.

   Loosen adjusting bolt (7) to adjust collar (8).
4. Use the speed controller of the air valve to adjust the moving speed of the flap clamp or the carriage feed.

6-3-3. Parallelism adjustment between the carriage feed and the binder

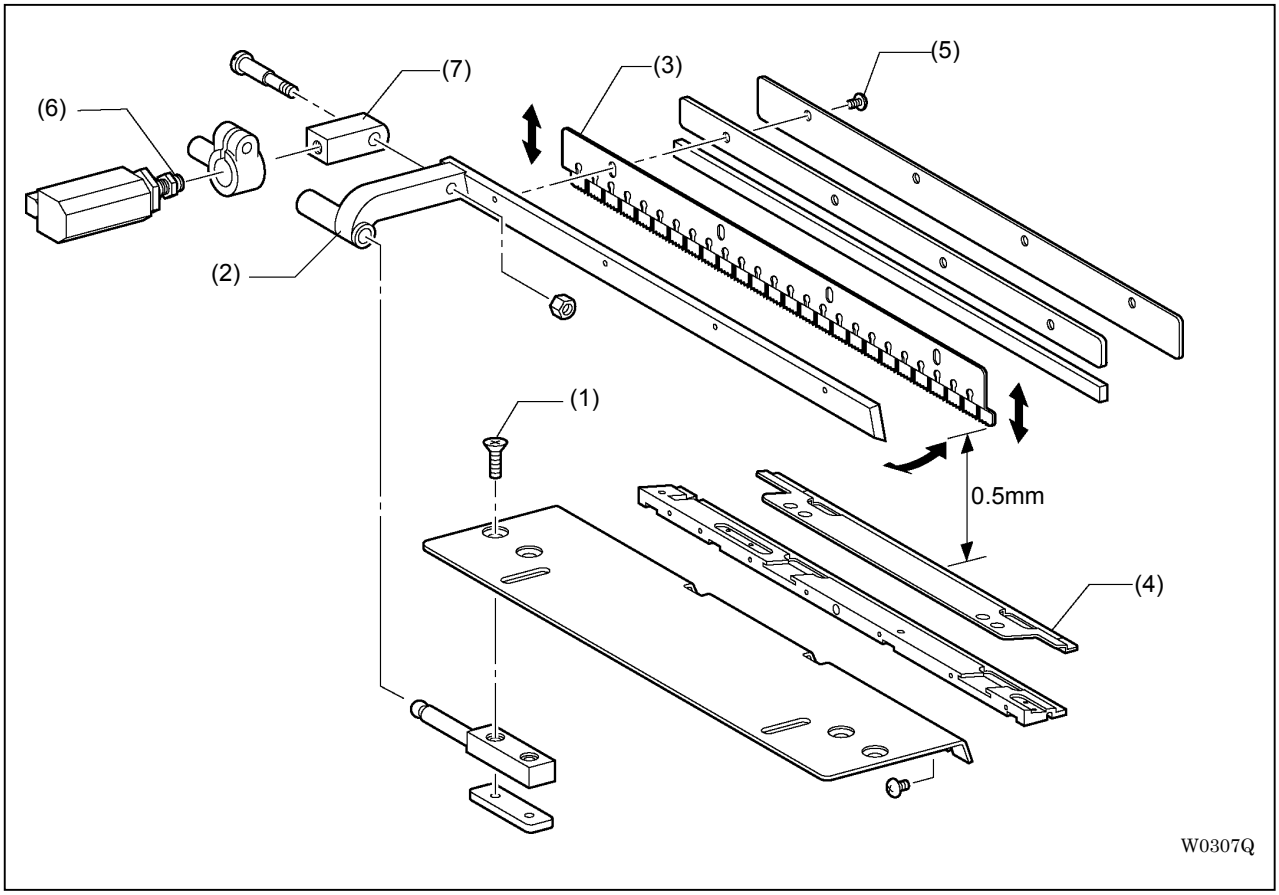
[Note] Before the following operations, be sure to complete the adjustment described in “6-2-6. Parallelism adjustment of the feed bar” every time the feeding device is detached.



Loosen adjusting bolts (3) (2 pieces) to adjust carriage feed (1) and binder (2) to be parallel each other.

* For BAS-6200 and 6220 models, loosen clamping screws (4) (4 pieces), then loosen adjusting bolts (3) (2 pieces). After this adjustment, slightly tighten clamping screws (4) (4 pieces). Previous to this, spread a screw locking glue on the clamping screws (4) (4 pieces). Once the position is fixed by clamping screws (4) (4 pieces), it never changes even if adjusting bolts (3) (2 pieces) are loosened.

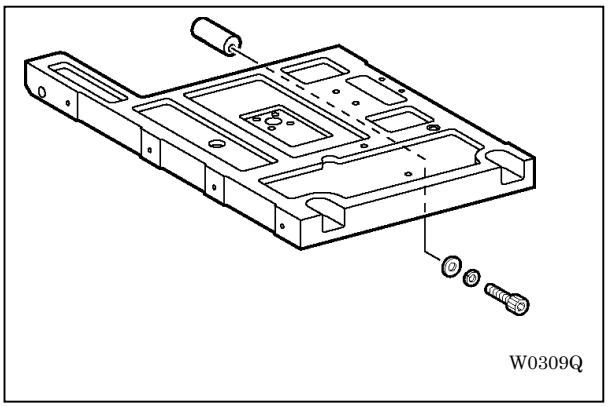
6-3-4. Adjustment of the flap clamp



1. Loosen flat head screws (1) (2 pieces) to move flap clamp (2), and adjust it to be parallel to the carriage feed.
2. Loosen fastening screws (5) (4 pieces) to adjust flap clamp blade (3) to be parallel to folding plate (4).
3. Loosen nut (6) to move joint (7) and adjust the distance between flap clamp blade (3) and folding plate (4) to be 0.5 mm.

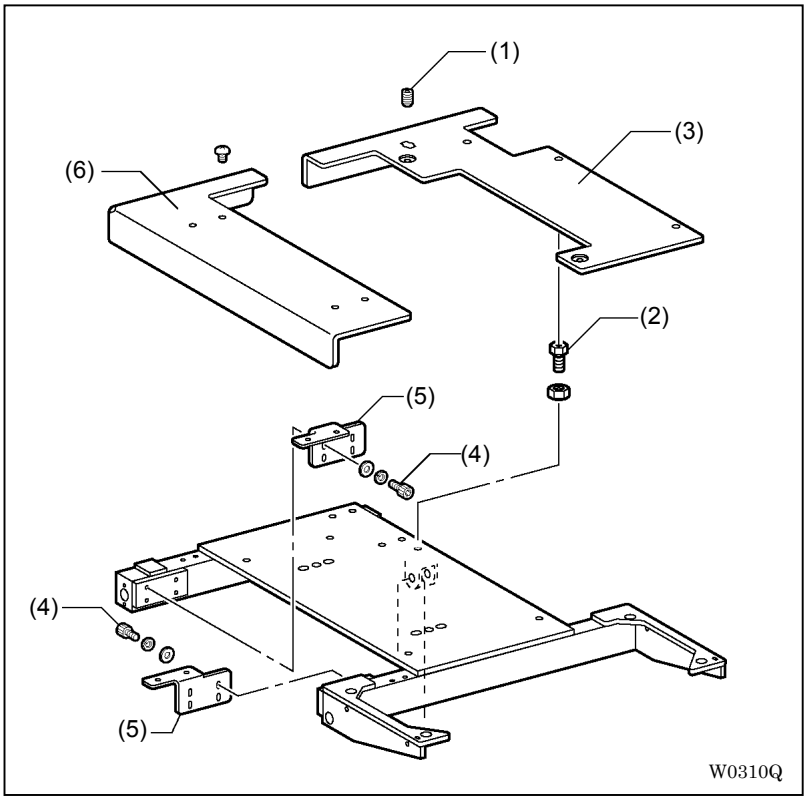
6-4. Main body

6-4-1. Height adjustment of the table



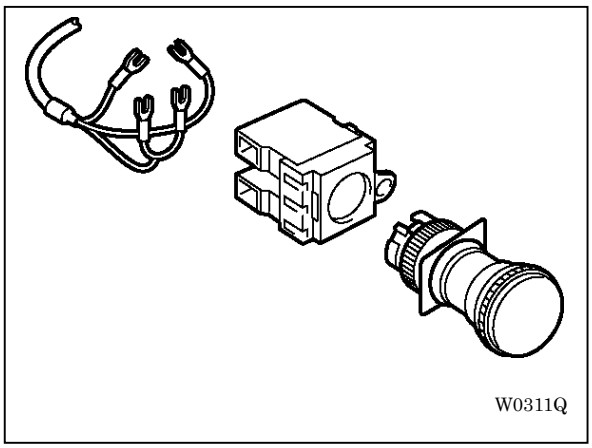
1. Detach the cloth slide plate and raise the head.
2. Loosen the adjusting bolt to adjust the table top to be parallel to the bed.

6-4-2. Height adjustment of the sub table



1. Adjust set screw (1) and table spacers (2) (3 pieces) so that sub table R (3) is aligned with the bed of the machine.
2. Loosen adjusting bolts (4) (8 pieces) to move sub table bracket (5) so that sub table L (6) is aligned with the bed of the machine.

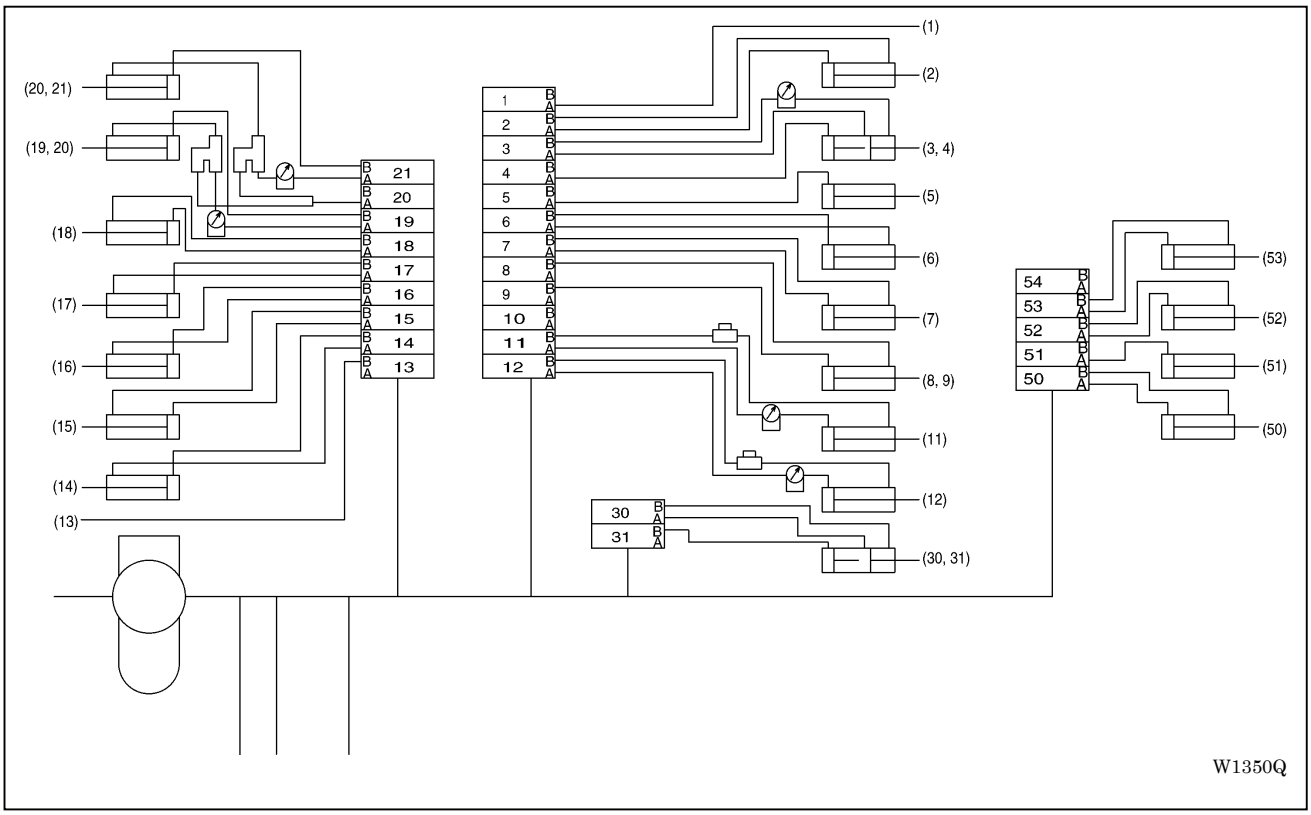
6-4-3. Replacement of the emergency stop switch



1. Rotate the red lever behind the frame to detach the contact block.
2. Detach the harness.
3. Detach the nut and replace the switch.

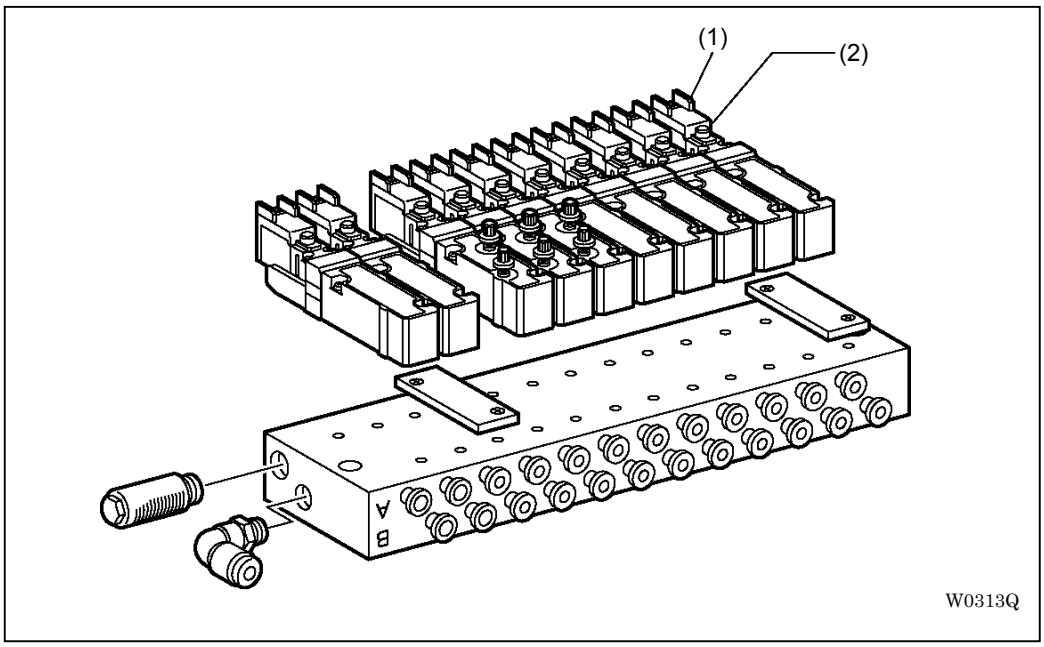
6-5. Air related

6-5-1. Air plumbing drawing



(1)	Lower thread detection	(13)	(Welting cloth blow) (BAS-6200 and 6220)	(50)	Vacuum device
(2)	Lower thread trimming	(14)	Flap R	(51)	Waist presser
(3)	Upper thread trimming	(15)	Folding plate R	(52)	Dart expander
(4)	Upper thread release (BAS-6200 and 6220)	(16)	Folding plate L	(53)	Roller stacker device
(5)	Timing plate	(17)	Flap L		
(6)	Center knife	(18)	Double / single welt selector (BAS-6200 and 6220)		
(7)	Thread supply	(19)	Carriage feed L		
(8)	Binder ascent	(20)	Carriage feed LR (BAS-6200 and 6220)		
(9)	Binder descent	(21)	Carriage feed R		
(10)	Corner knife L				
(12)	Corner knife R	(30, 31)	Needle bar change (BAS-6220)		

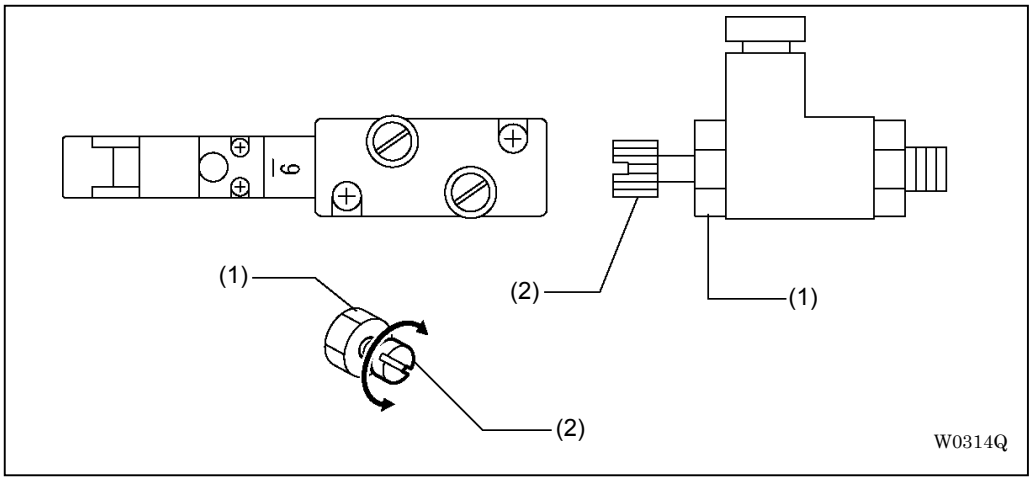
6-5-2. Manifold



The air is supplied from port B when magnetic valve (1) is OFF or when manual operation switch (2) is not pushed down.

The air is supplied from port A when magnetic valve (1) is ON or when manual operation switch (2) is pushed down.

6-5-3. Adjustment of the speed controller

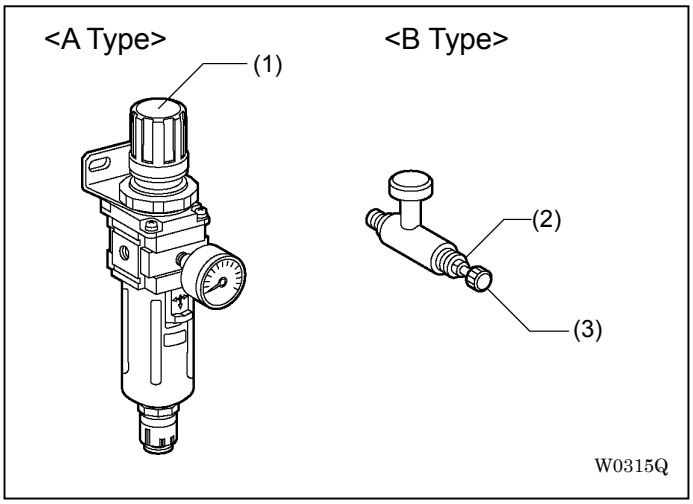


Loosen nut (1) and rotate knob (2) to adjust the moving speed of the cylinder. Turning the knob to the direction L (right) makes it slower, and turning to R (left) makes it faster.

The valve A or B controls the port A or B respectively.

6-5-4. Adjustment of the regulator

* The indicator of the regulator responds only when the air is supplied.

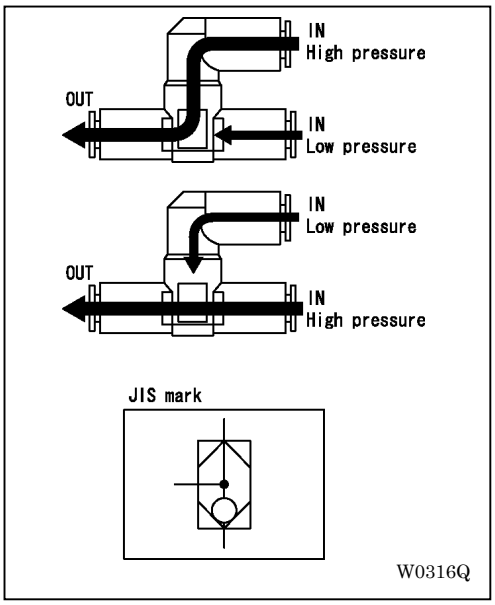


Purpose	Valve No.	Type	Pressure
Filter regulator	-	A	0.5 Mpa
Upper thread trimming (BAS-6200 and 6220)	3	A	0.3 Mpa
Corner knife (BAS-6200 and 6220)	11, 12	A	0.3 Mpa
Carriage feed (BAS-6200 and 6220)	19, 21	B	0.3 Mpa

For the type A, push up handle (1) then rotate it.

For the type B, loosen nut (2) then rotate knob (3).

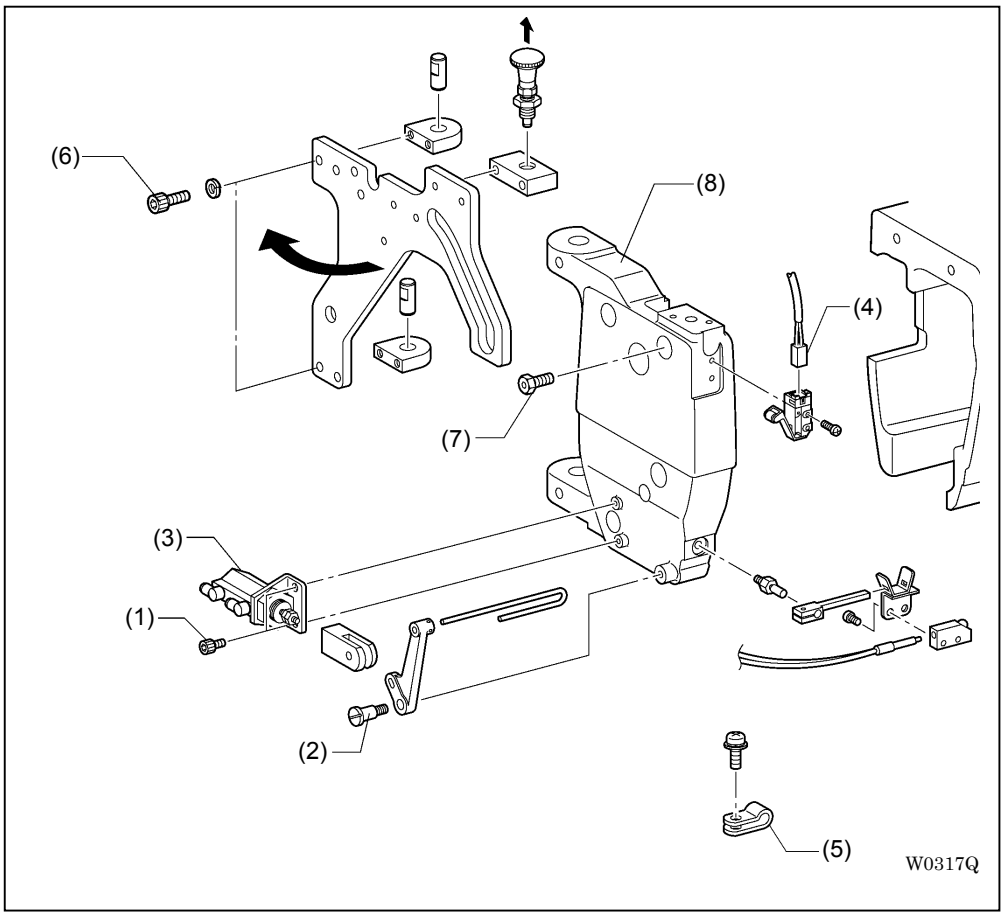
6-5-5. Shuttle valve (BAS-6200 and 6220)



The air with higher pressure is always chosen to be supplied to “OUT” side. This switches the pressure of the carriage feed into 2 levels.

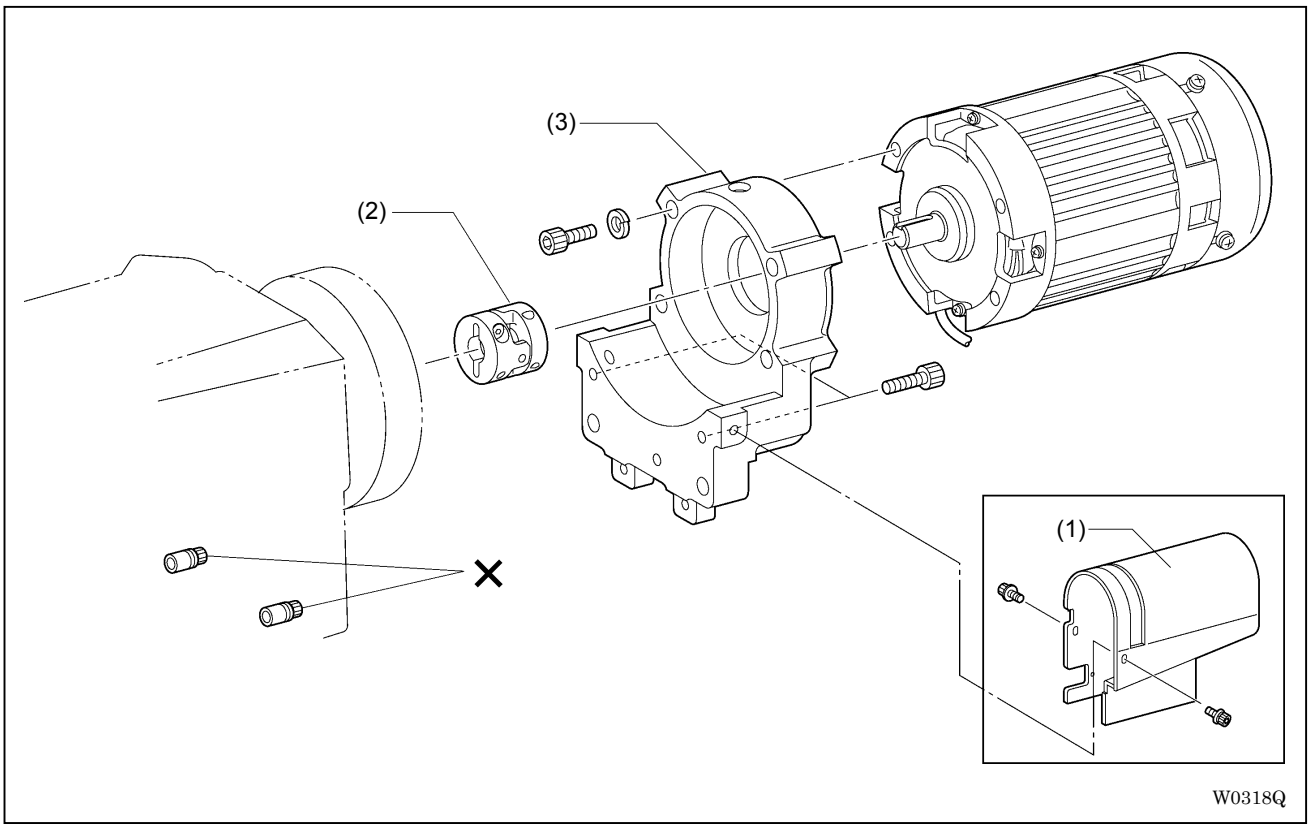
6-6. Upper shaft and needle bar swing board related

6-6-1. Detachment of the face plate



1. Detach in the following order:
   Adjusting bolts (1) (2 pieces) Shoulder screw (2) Thread supply cylinder (3)
   Face plate open/close switch connector (4) Clamp (5)
2. Remove the bolt (6) one of the upper and lower sides.
3. Open the main plate and detach bolts (7) (3 pieces) to detach face plate (8).

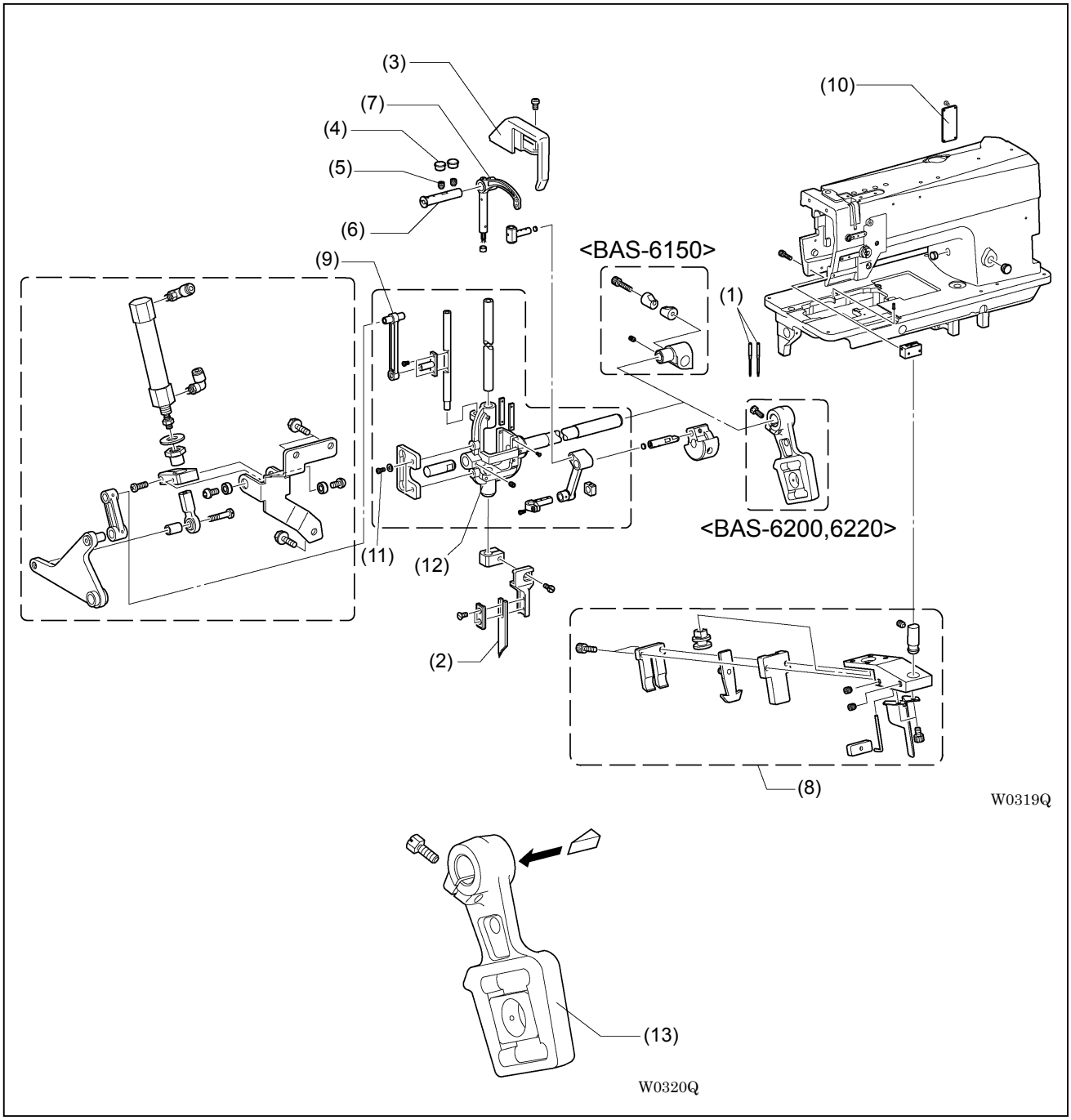
6-6-2. Detachment of the upper shaft motor



Detach motor cover (1). Loosen the screw of upper shaft coupling (2). Detach motor bracket (3).

[Note] Never loosen adjusting bolts with X marks. In case they have been unscrewed, align the direction of the upper shaft with the motor shaft, then attach them again with positioning collars.

6-6-3. Detachment of the needle bar rocker base

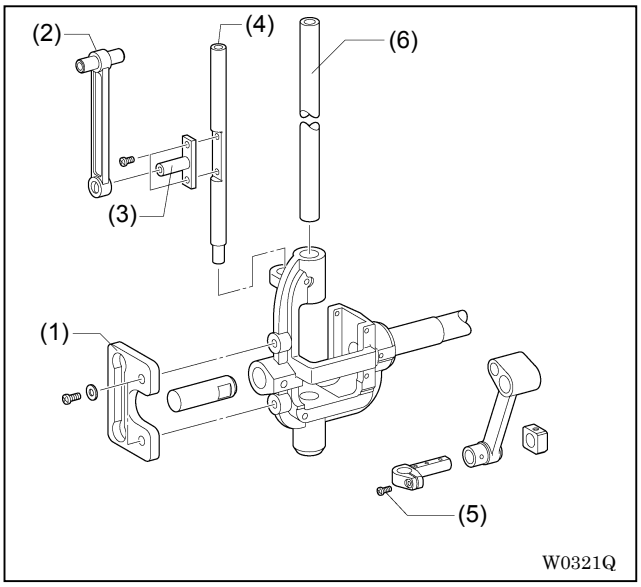


1. Detach in the following order:
   Needle (1) Center knife (2) Thread take-up lever cover (3) Rubber cap (4) (2 pieces)
2. Loosen set screws (5) (2 pieces).
3. Detach in the following order:
   Thread take-up lever shaft (6) Thread take-up lever (7) Upper thread trimming device (8)
   Center knife drive connecting rod (9) Arm cover (10)
4. Loosen screw (11) to detach needle bar rocker base (12).

* For BAS-6200 and 6220 models, the detachment can be easier if a wedge etc. is driven into the cutting of needle bar rocker connecting rod (13) to widen the space.

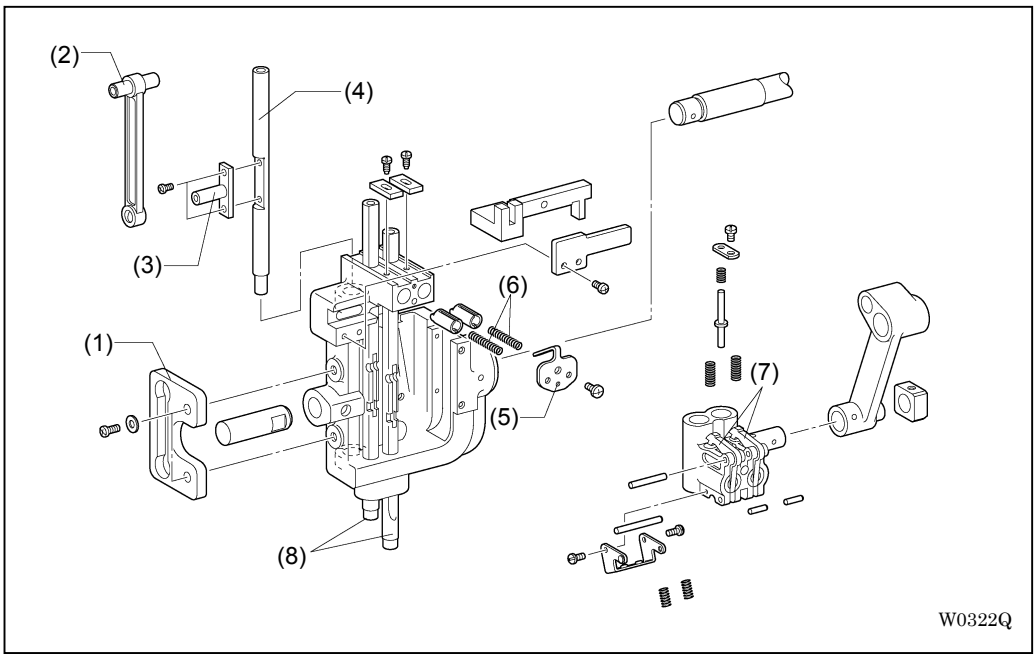
6-6-4. Disassembly of the needle bar rocker base

<BAS-6150 and 6200>



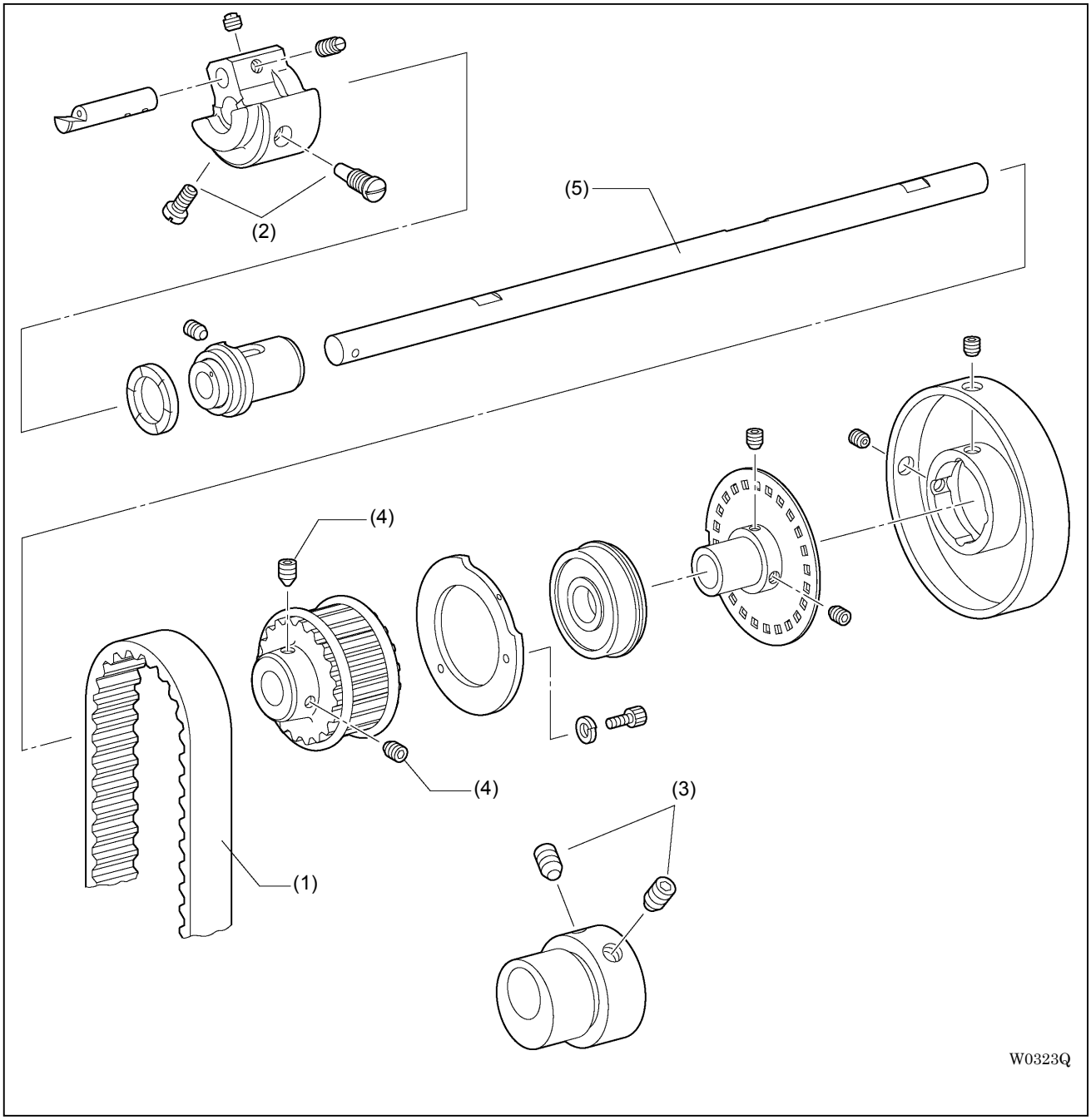
1. Detach in the following order:
   Knife bar guide (1) Center knife drive connecting rod (2) Knife bar guide (3)
   Knife bar (4)
2. Loosen screw (5) of the needle bar holder to detach needle bar (6).

<BAS-6220>



1. Detach in the following order:
   Knife bar guide (1) Center knife drive connecting rod (2) Knife bar guide (3)
   Knife bar (4) Spring cover (5)
   Needle bar stopper spring (6) (2 pieces)
2. Push down set levers (7) (2 pieces) of the needle bar holder and extract needle bar (8) down below.

6-6-5. Detachment of the upper shaft



1. Detach timing belt (1).

* Pulling timing belt (1) with string etc. while rotating the upper shaft can make the detachment easier.

2. Loosen screws in the following order:

   Thread take-up lever crank screws (2) (2 pieces)

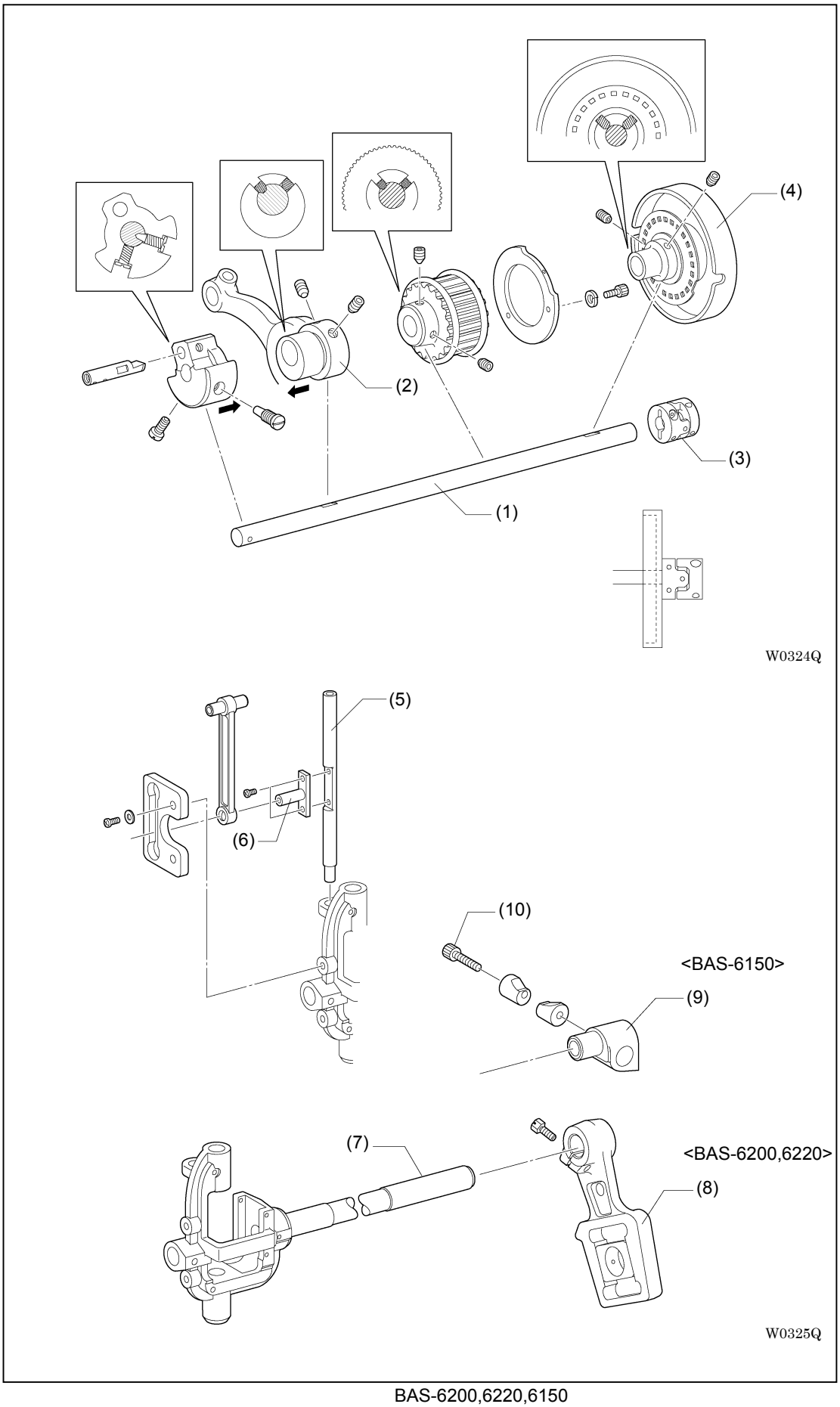
   Center knife drive eccentric wheel screws (3) (2 pieces)

   Upper shaft timing pulley screws (4) (2 pieces)

3. Detach upper shaft (5).

6-6-6. Assembly of the upper shaft and the needle rocker base

Assembly goes in reverse order to disassembly.



BAS-6200,6220,6150

1. Adjust the screw position of upper shaft (1) as described above.

   Press upper shaft (1) lightly with Center knife drive eccentric ring (2) so as the shaft direction not to be shaky.

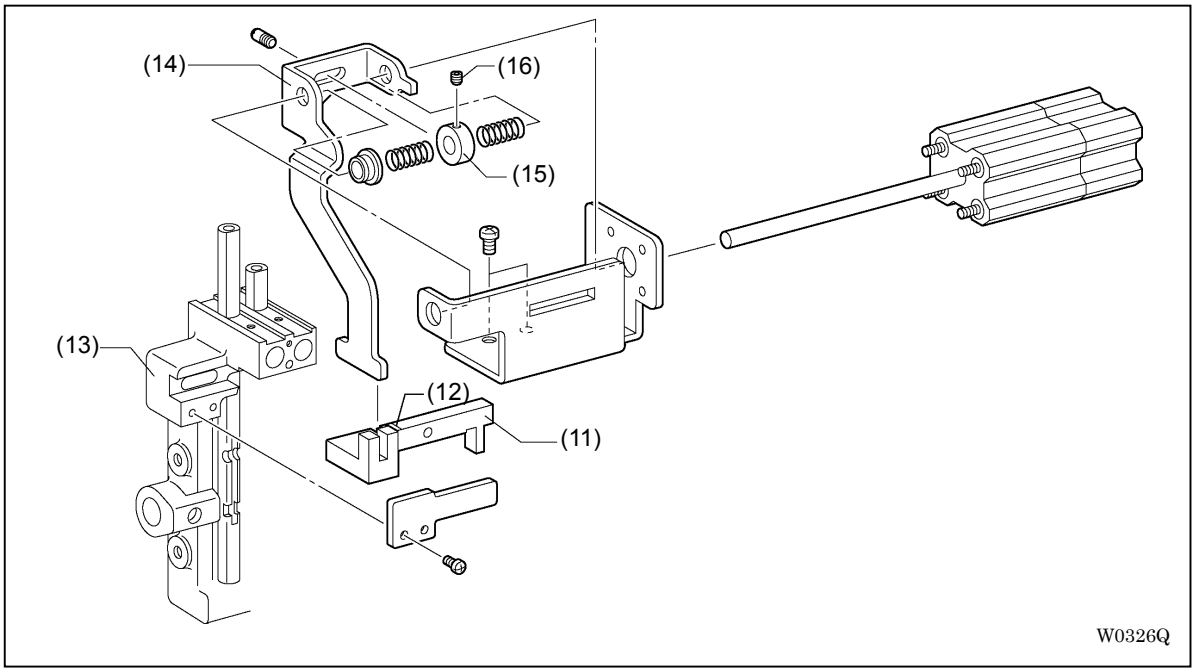
   Attach coupling (3) so that it touches pulley (4).

2. Attach knife bar conductor (6) for smooth movement of knife bar (5).

3. Press needle bar rocker base (7) lightly with needle bar rocker connecting rod (8) (Pinch sleeve (9) in BAS-6150 models) so as its shaft direction not to be shaky.

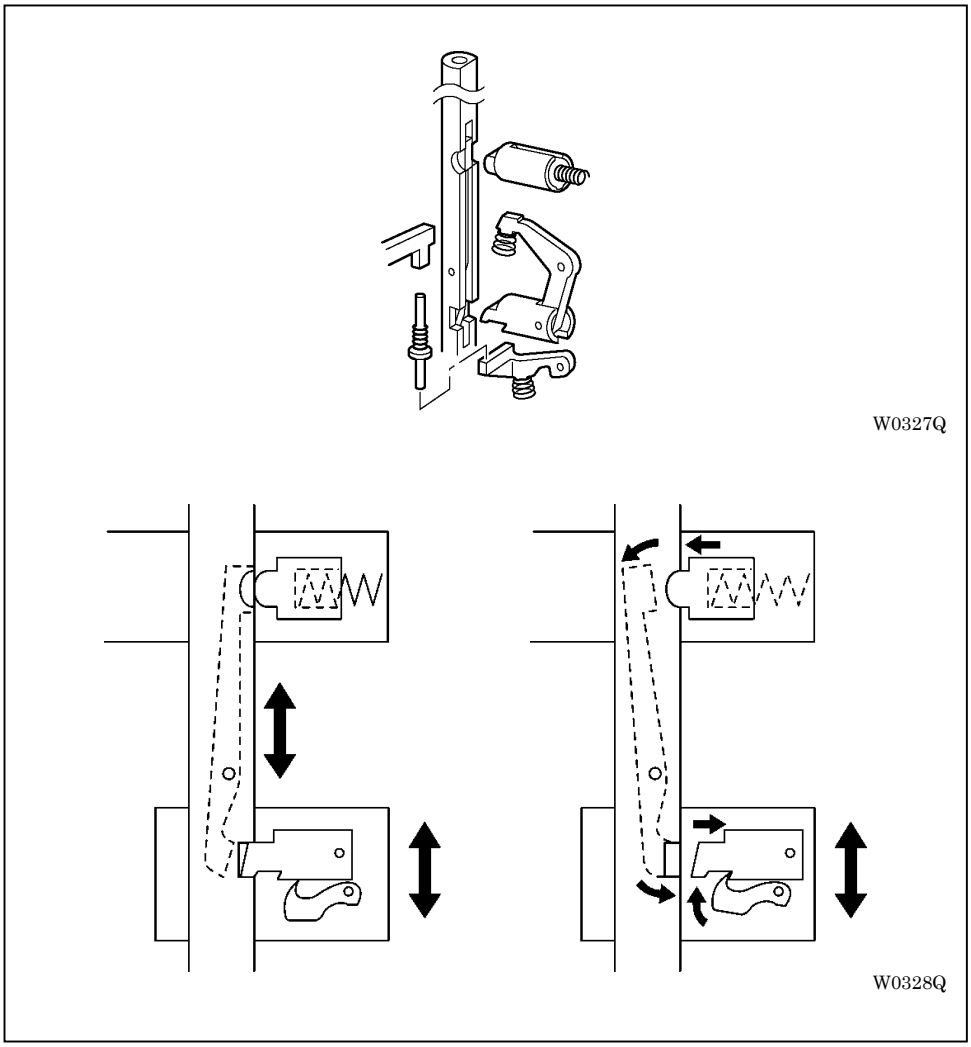
* Fasten screw (10) after the adjustment described in “6-6-7. Adjustment of the needle down position” is completed.

<BAS-6220>



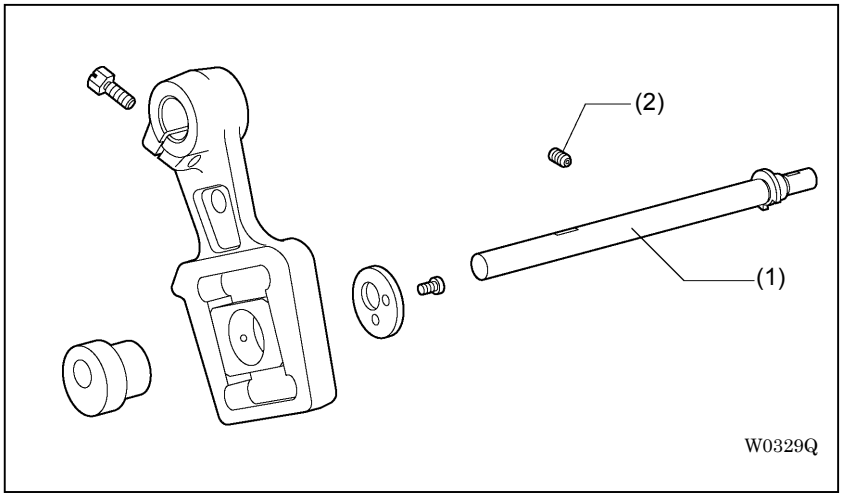
4. Adjust the change needle device as follows under the condition that the air is supplied and the cylinder rod is sticking out halfway.

   Loosen set screw (16) to move support plate (14) and set screw collar (15), to align base line (12) of slide block (11) with end surface of the needle bar base (13).



The above left describes a view with the needle bar pumping, and the right describes a view with the bar stopped.

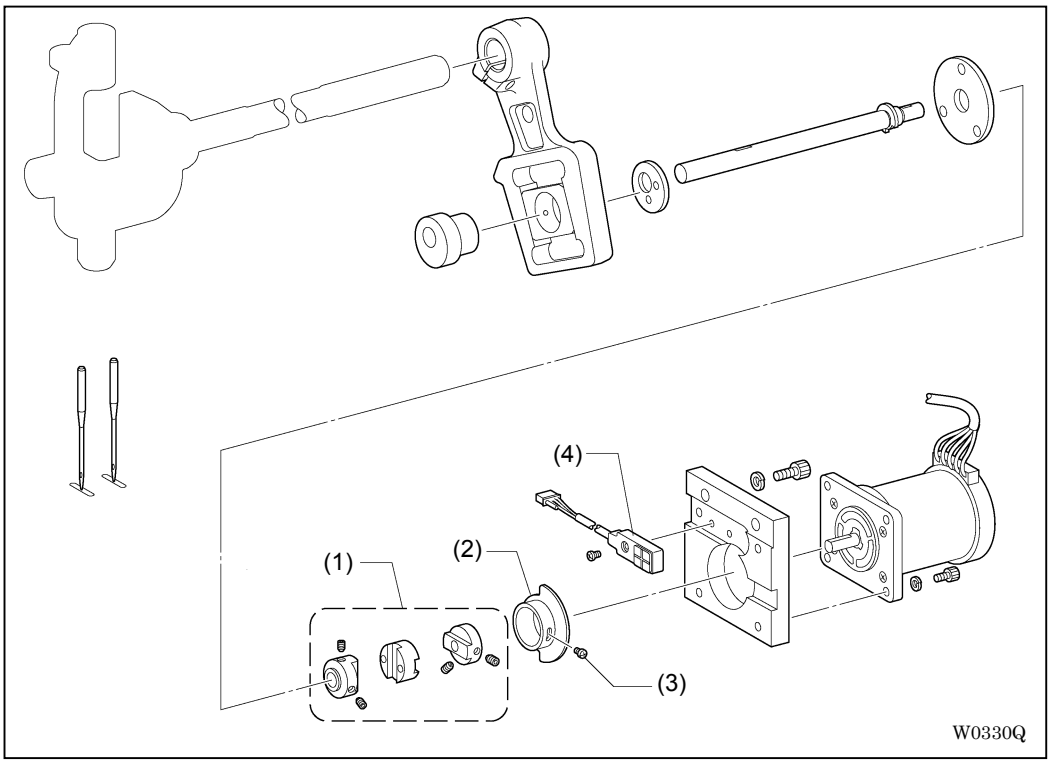
6-6-7. Adjustment of the needle down position



Move the needle bar rocker base to adjust the needle down position so that the needle is aligned with the center of the needle hole.

* For BAS-6200 and 6220 models, fix fulcrum shaft (1) with set screw (2) before adjustment. Loosen screws of the needle bar rocker connecting rod (Pinch sleeve (9) in BAS-6150 models) for the adjustment. (Refer to “6-6-6. Assembly of the upper shaft and the needle rocker base”)
* For BAS-6200 and 6220 models, be sure to loosen set screw (2) after the adjustment.
* For BAS-6150 and 6200 models, correct the direction of the needle bar after the adjustment. (Refer to “3-1-1. Replacement of the needle clamp”) Then also adjust the height of the needle bar. (Refer to “3-1-2. Timing adjustment of encounter”)

6-6-8. Adjustment of the needle rocker home position sensor (BAS-6200 and 6220)

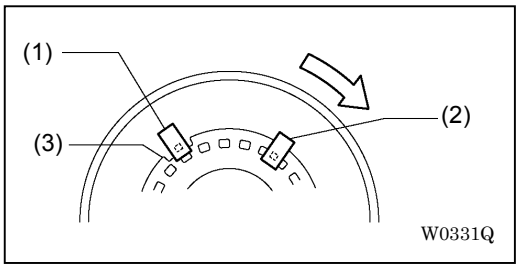


1. Rotate coupling (1) by hand to adjust the needle down position to be aligned with the needle hole center.
2. Slightly loosen screw (3) so that home position dog (2) can move.
3. Turn on the power.
4. Rotate home position dog (2) to put it closer to sensor (4), and fasten screw (3) to fix it where the LED of sensor (4) illuminates.

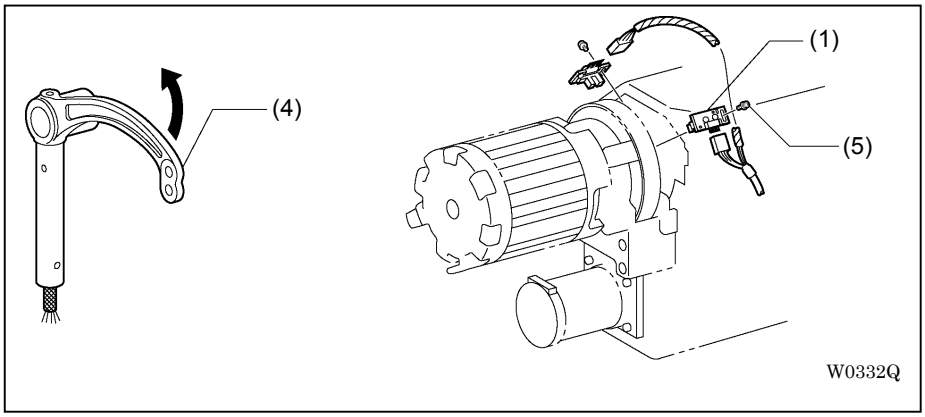
   [Note] Be careful with the live power supply.

6-6-9. Adjustment of the sewing sensor

The sewing sensor includes needle up sensor (1) and synchronizing sensor (2).

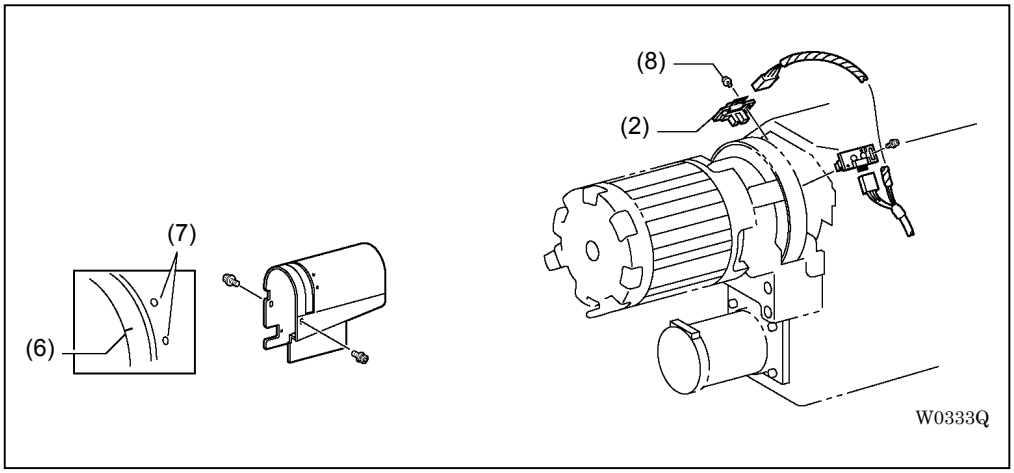


<Adjustment of the needle up position>



Detach motor cover (5). Rotate the pulley to move thread take-up lever (4) to the highest position. Loosen screw (5) to put sensor (1) at the center of notch (3) of the sensor dog.

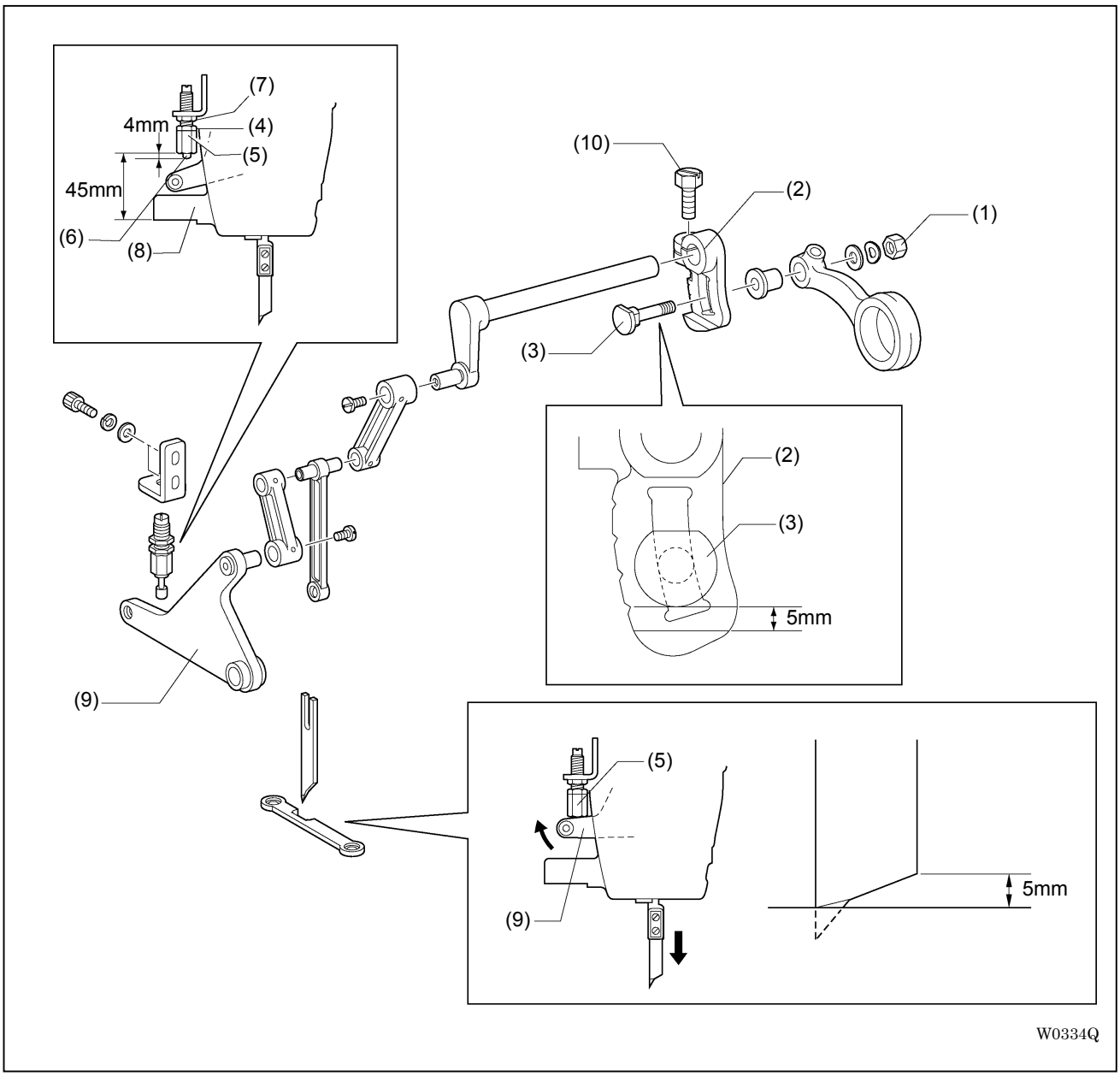
<Adjustment of the stop position>



Adjust the stop position so that base line (8) of the pulley is aligned with the center point between two marks (9) on the motor cover.

Loosen screw (10) of synchronizing sensor (2) for the adjustment.

6-6-10. Adjustment of the center knife drive connecting rod



Adjust as follows so that the end of the center knife sits 5 mm high from the needle plate in the highest position within the center knife movement after the descent from its standby position.

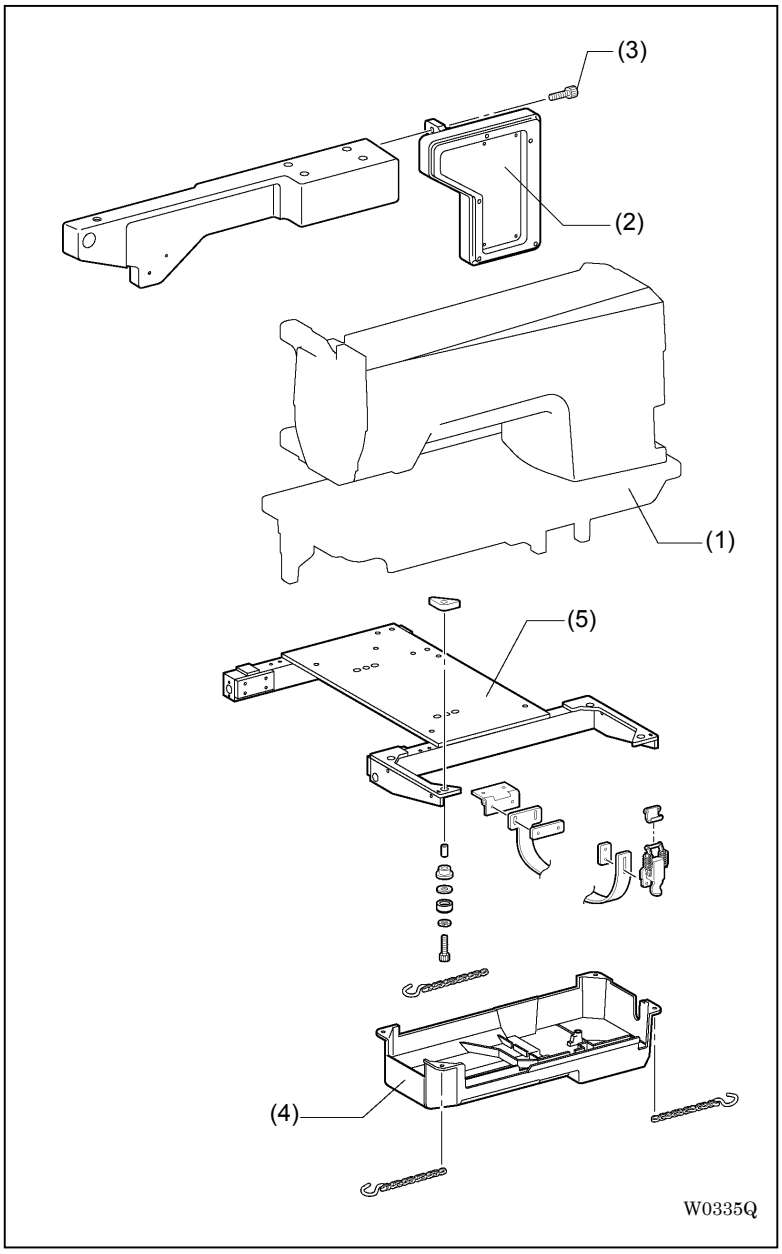
1. Loosen nut (1) to adjust the distance between crank (2) and screw (3) to be 5 mm.
2. Loosen nut (4) of the damper to adjust the position of stopper (5) so that damper top (6) sticks out by 4 mm.
3. Loosen nut (7) to adjust the distance between the bottom face of stopper (5) and the bottom face of face plate shaft bearing (8) to be 45 mm.
4. Lift up center knife drive connecting rod (9) to touch the bottom face of damper stopper (5).

   [Note] Be careful with the center knife coming down.
5. In this condition, rotate the pulley to move the center knife to the highest position within the center knife movement. Loosen bolt (10) and move crank (2) to adjust the height of the end of the center knife to be 5 mm from the needle plate.

6-7. Lower shaft related

Take down the head from the main body before the disassembly or the adjustment of the lower shaft device.

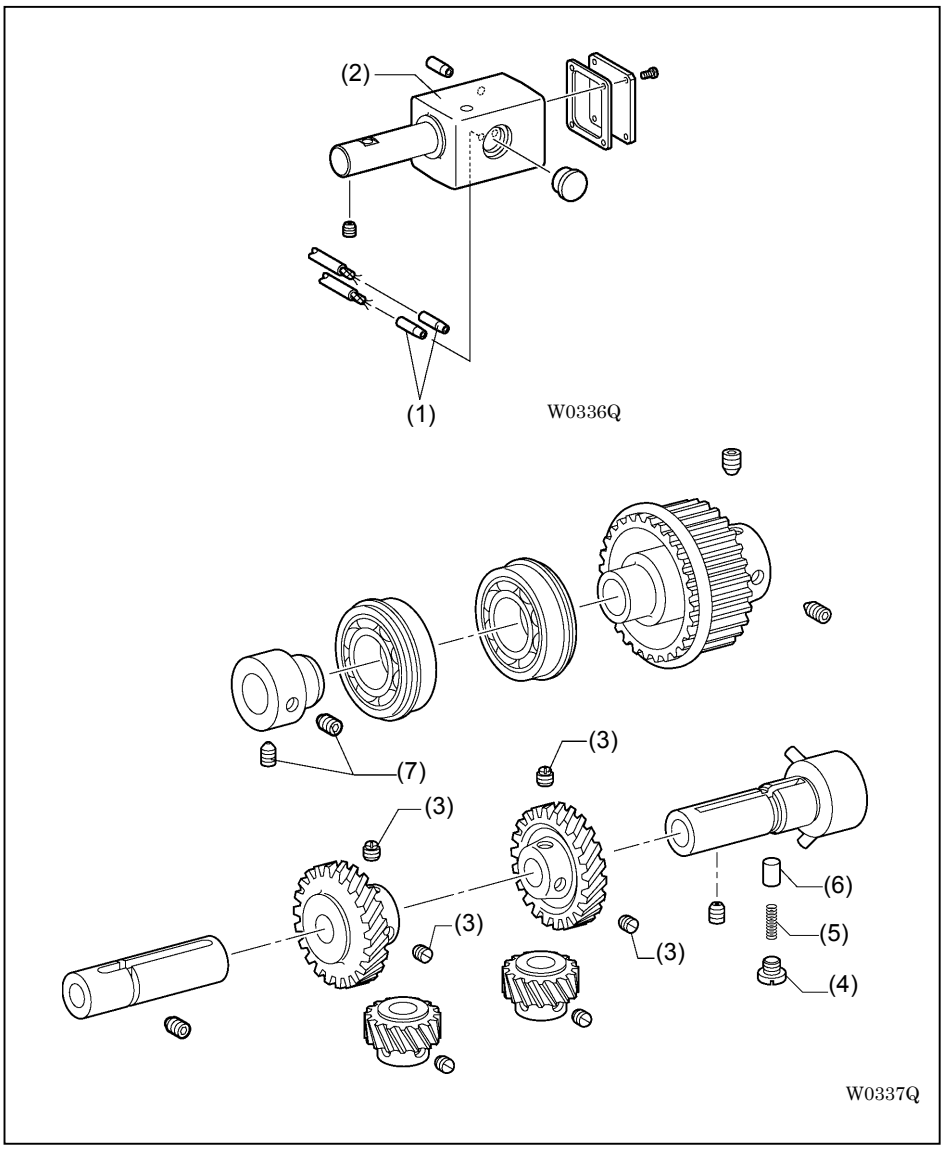
6-7-1. How to take down the head



1. Detach all connectors connecting the head and the control box, and detach all air hoses on the head.
2. Detach adjusting bolt (3) connecting the arm of head (1) and feeder base support (2).
3. Detach oil pan (4).
4. Detach head (1) from sub frame (5). Hoist head (1) with a crane etc. to take it down.

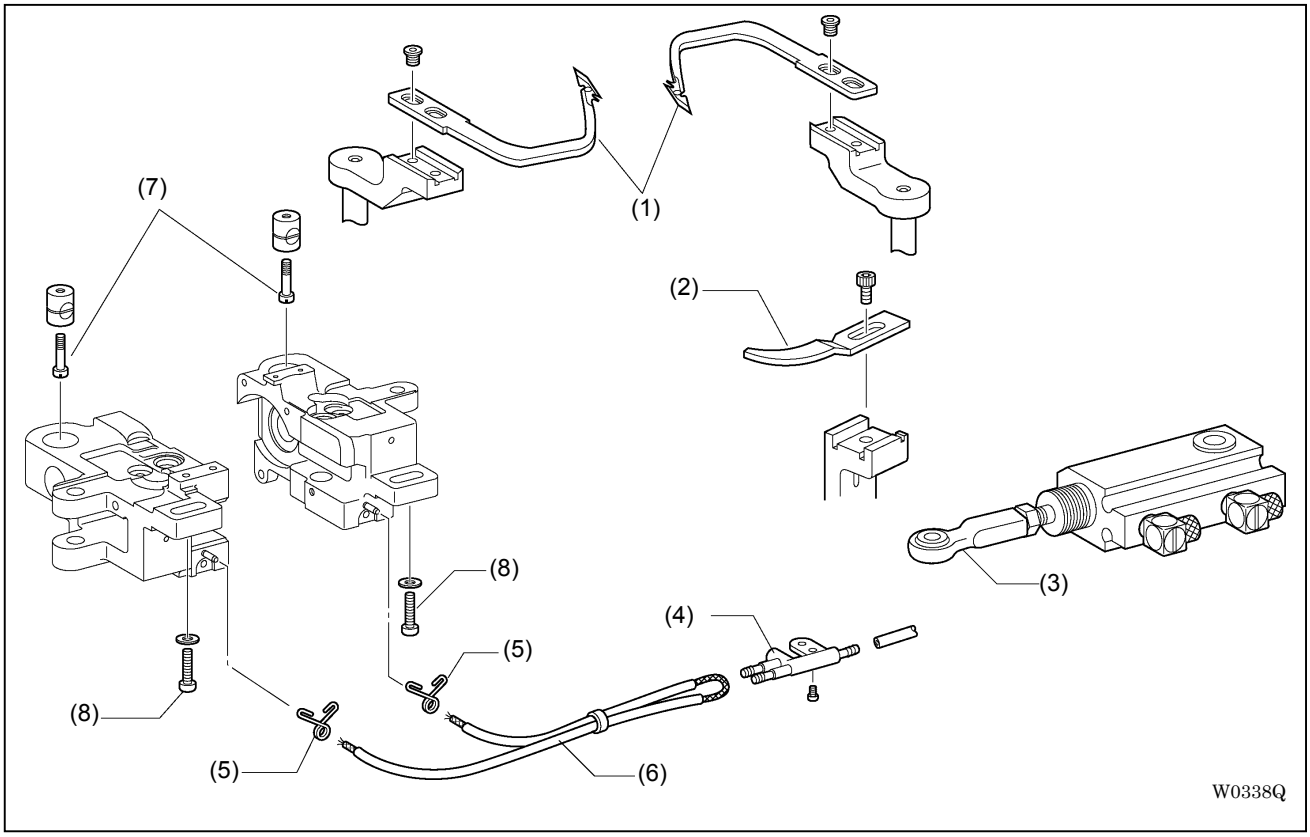
   [Note] Be sure to use a crane etc. to hoist the head due to its heavy weight. Also be careful with its handling due to its unstableness.

6-7-2. Detachment of the lower shaft



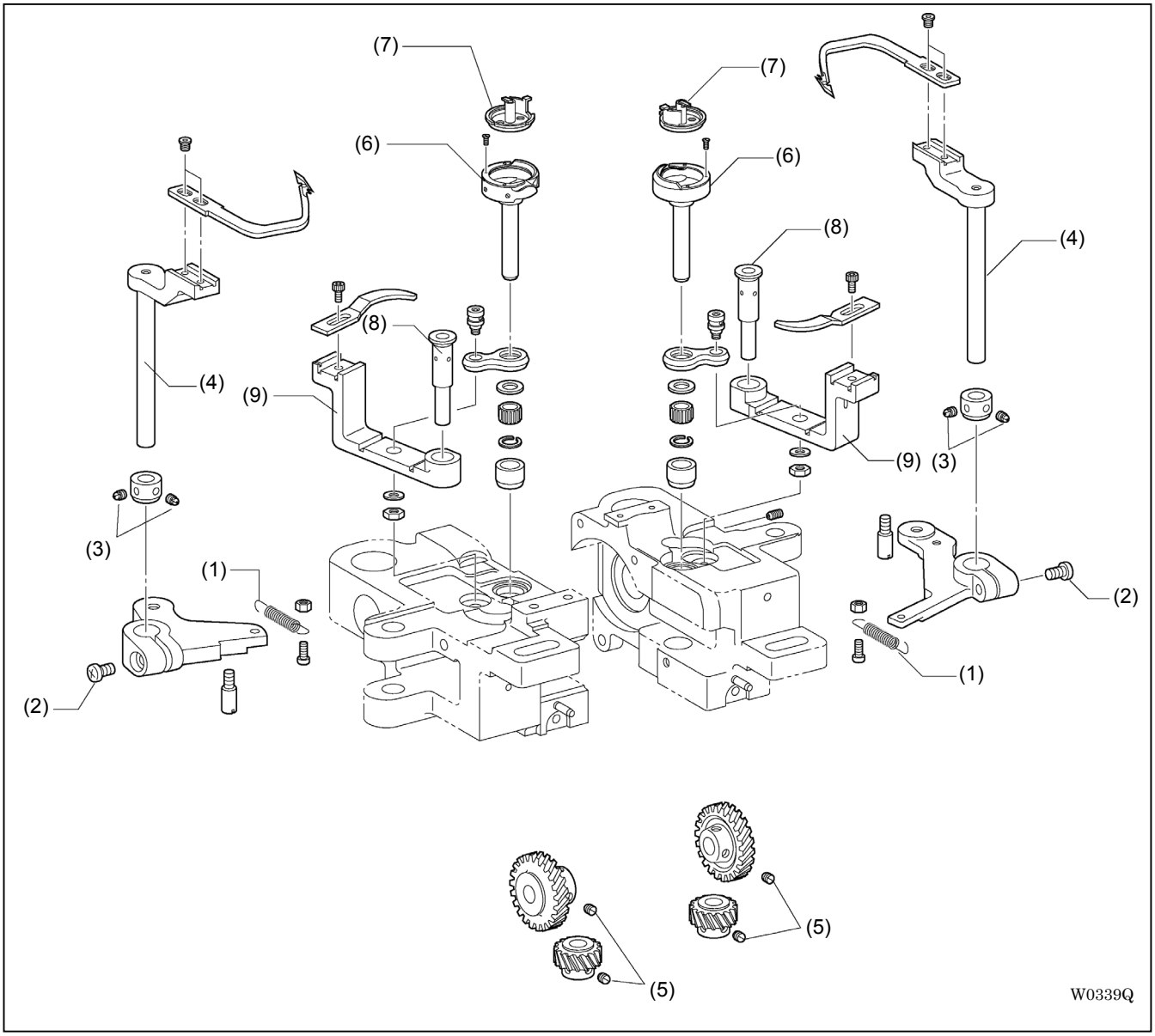
1. Detach oiling pipe (1) and drain the oil from oil tank (2).
2. Lay down the head.
   [Note] Be careful not to deform parts on the back side of the head such as center knife cylinder.
3. Detach timing belt. (Refer to “6-6-5. Detachment of the upper shaft”)
4. Loosen set screws (3) (4 pieces) of the spiral gear.
5. Detach in the following order:
   Fastening screw (4) Spring (5) Oil plunger (6)
6. Loosen set screws (7) (2 pieces) of the ball bearing bush to detach the lower shaft.

6-7-3. Detachment of the rotary hook base



1. Detach in the following order:
   Movable knives (1) (2 pieces) Opener of the right side rotary hook base (2)
   Joint of the lower thread trimming cylinder (3) Oiling terminal (4)
   Tube clip (5) (2 pieces) Oil tube (6)
2. Loosen fastening screws (7) (2 pieces).
3. Unscrew fastening screws (8) (2 pieces).

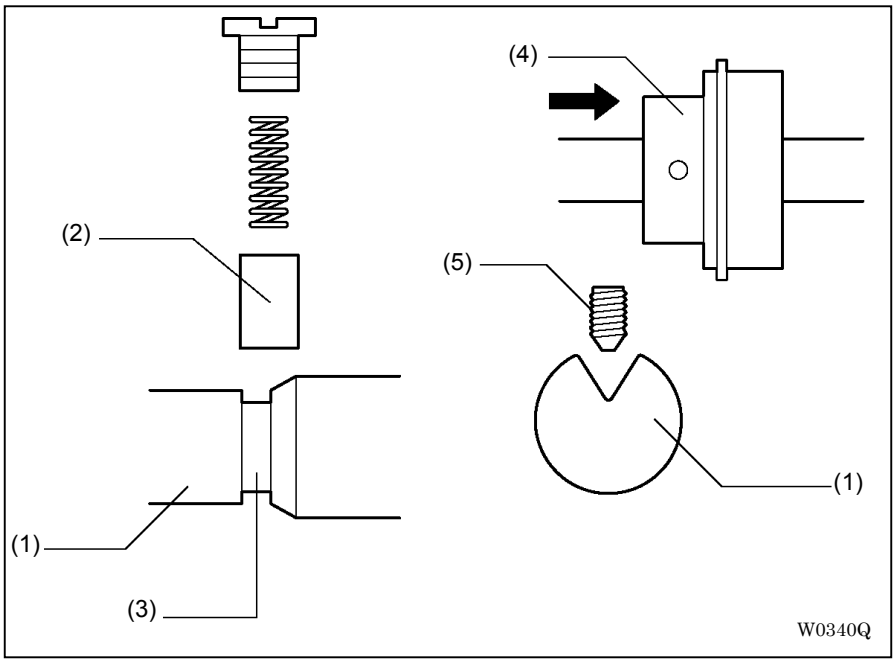
6-7-4. Disassembly of the rotary hook base



1. Detach springs (1) (2 pieces).
2. Loosen fastening screws (2) (2 pieces) and set screws (3) (4 pieces).
3. Detach movable knife levers (4) (2 pieces).
4. Loosen set screws (5) (4 pieces).
5. Detach in the following order:
   Rotary hooks (6) (2 pieces) Inner rotary hooks (7) (2 pieces)
   Opener lever shafts (8) (2 pieces) Opener levers (9) (2 pieces)

6-7-5. Assembly of lower shaft related

Assembly goes in reverse order to disassembly.



1. Adjust the position of lower shaft (1) so that plunger groove (3) on lower shaft (1) overlaps oil plunger (2).
2. Attach bush (4) and slide it to the direction of arrow. Attach pointed set screw (5) so as to fit the groove on lower shaft (1).
3. Attach opener lever shafts (6) (2 pieces) so as its direction not to be shaky.
4. Refer to the following pages for the adjustment after the assembly is completed:

   3-1-3. Clearance adjustment of the needle and the rotary hook

   3-1-4. Clearance adjustment between the rotary hook and the needle plate

   3-1-5. Clearance adjustment between the rotary hook and the bobbin case opener

   3-3-2. Adjustment of lower thread trimming

   3-3-3. Replacement and adjustment of lower thread trimming related

7. Electric component

Danger

Wait at least 5 minutes after turning off the power switch and disconnecting the power cord from the wall outlet before opening the face plate of the control box. Touching areas where high voltages are present can result in severe injury.

7-1. Directions for adjustments

Be careful about following matters when giving an inspection or adjustment with the face plate of the control box open.

[Causing electric shocks]

Big capacitors can keep high voltages more than 5 minutes after the power off, depending on circumstances. Wait at least 5 minutes after turning off the power before the following operations.

- Opening or closing of the control box
- Replacement of fuses
- Replacement of the main board
- Connecting or disconnecting of connectors
- Replacement of PROM
- Measurement of the resistance (Continuity test)
- Other operations in which an operator touches the inside of the control box.

Some inspections require to turn on the power with the control box open to measure voltages. In such cases, be sure never to touch other parts than that to be measured during the operation. And also be careful about that high voltages are remaining for 5 minutes after turning off the power.

[Causing injuries]

Be careful not to be caught by the cooling fan whirling when the power is on.

Be careful not to cut hands or fingers with metal parts in the heat sink or lids when connecting or disconnecting connectors or in measurements.

7-2. Composition of the control box

A. Main PCB ..... Fixed in the box and can be seen in front of the operator who opens the box. This controls the whole machine and includes 3 kinds of PROMs. Pulse motor driving circuits (needle swing, corner knife and roller stacker) are on board.

B. Power supply PCB..... Fixed on the bottom plate. Supplies the inverter power for machine motor driving, and control voltages (+24V, +30V, +55V (all DC)).

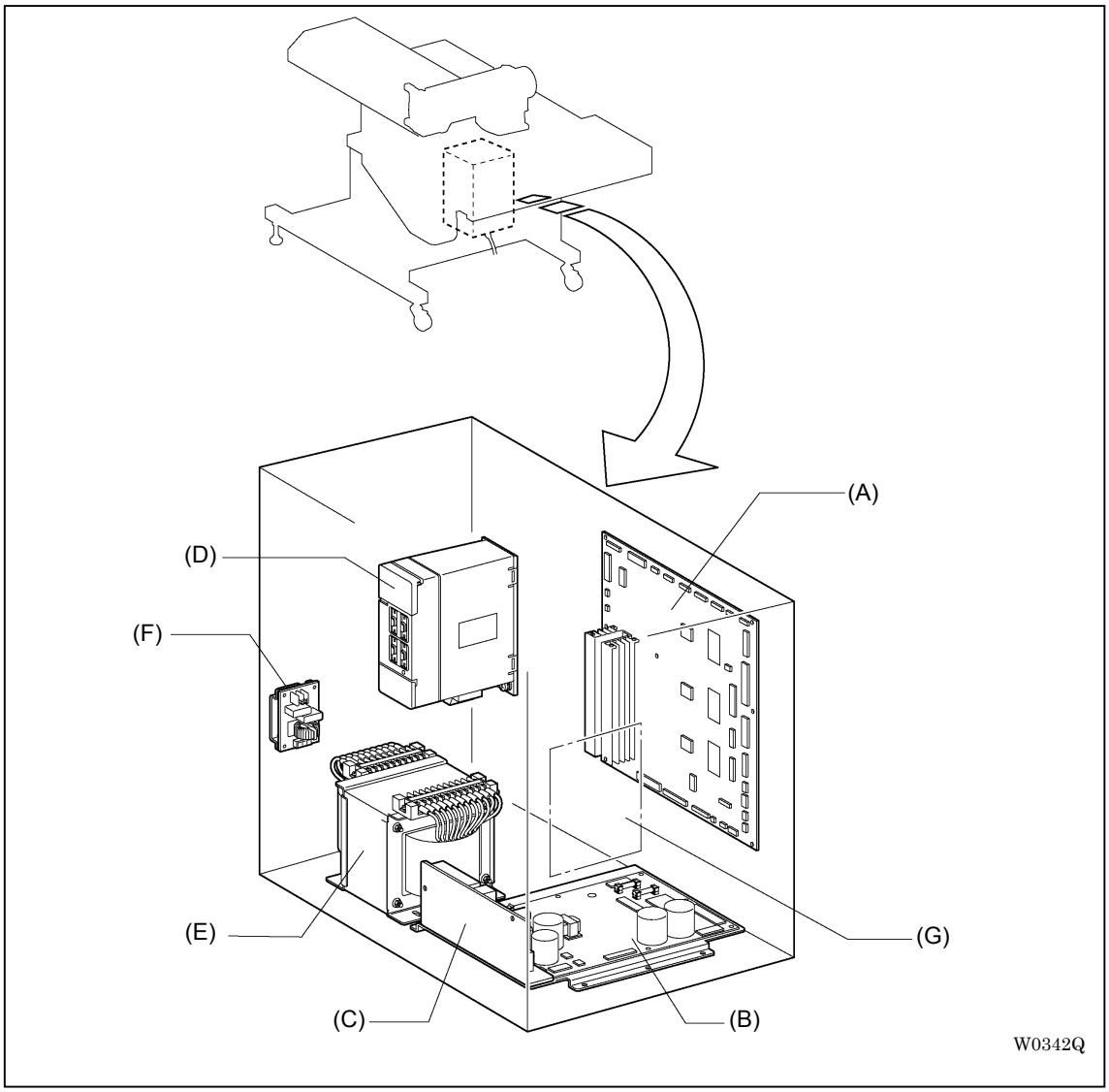
C. Switching power supply ... Fixed in the near side on the power supply PCB. Supplies control voltages respectively (+5V, ±12V (all DC)).

D. Servo driver ..... Fixed on the upper left part in the box. Drives the AC servo motor to move the carriage feed back and forth.

E. Conversion transformer ... Converts the primary voltage into the required one by the machine. For the primary voltage, single phase 200 V, 220 V, 240 V, 380 V, 400 V or 415 V can be chosen.

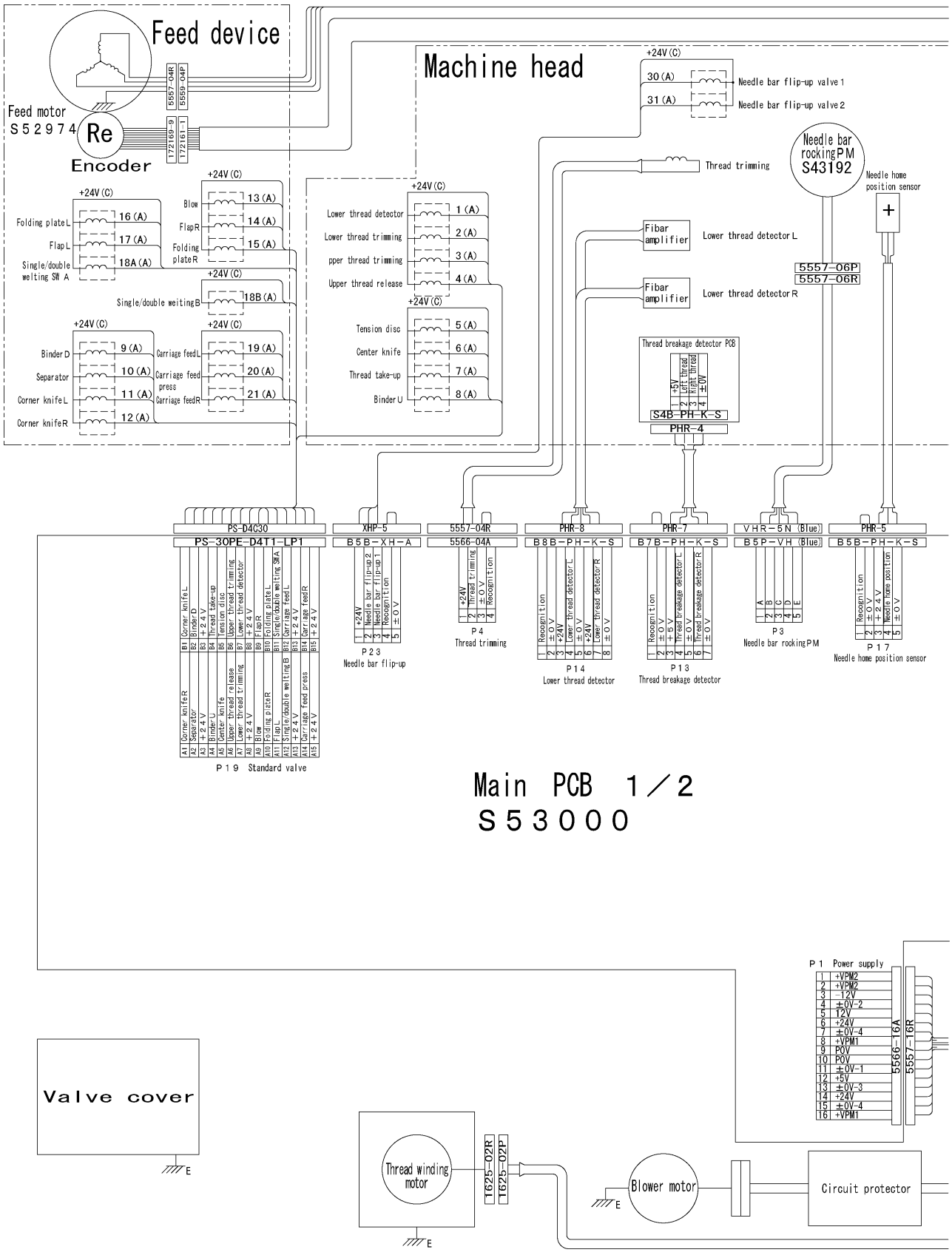
F. Noise filter ..... Fixed on top of the left side in the box. Reduces the noise on the power supply line.

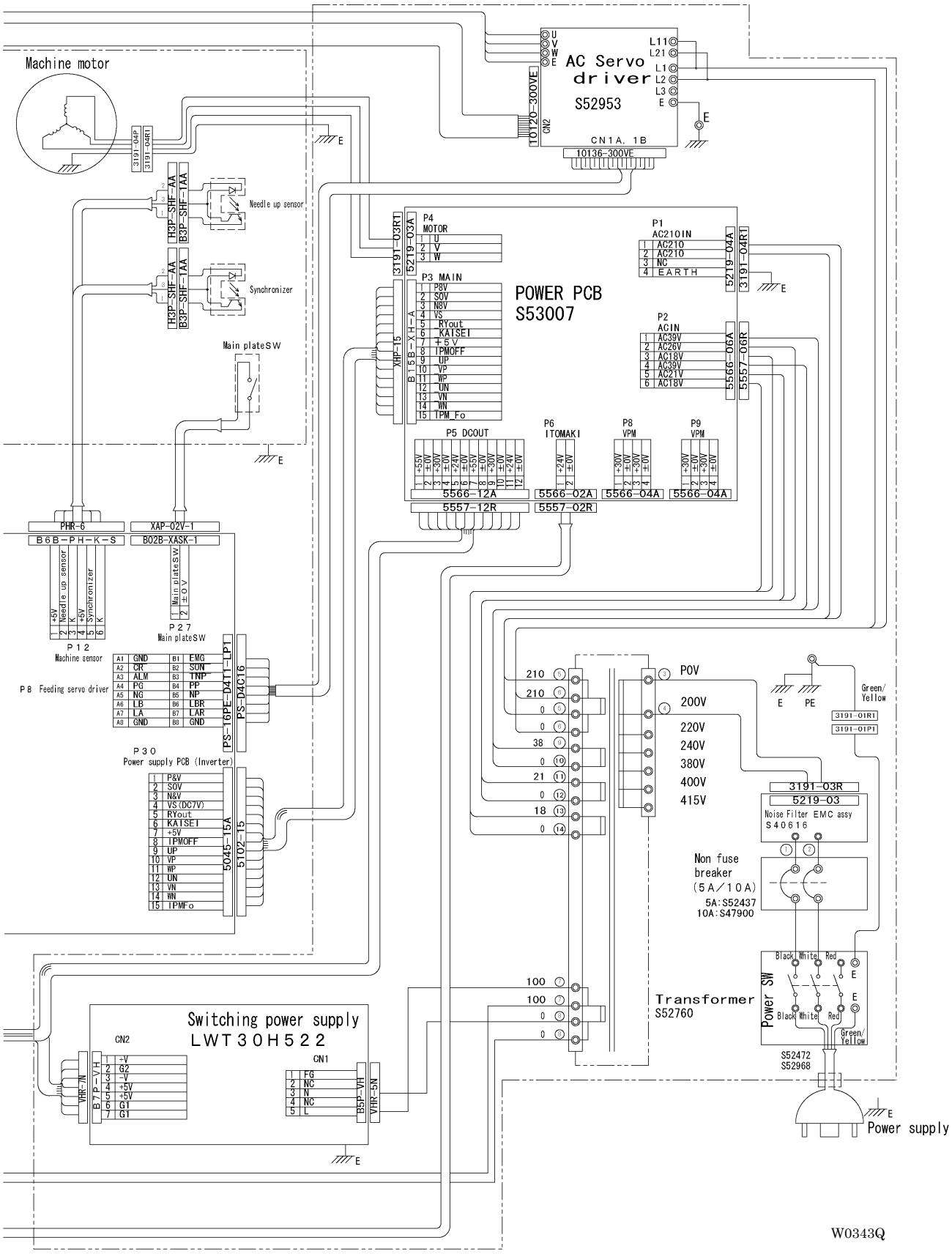
G. Optional PCB ..... An optional PCB for extension required by some optional devices is fixed on the right side of the box.

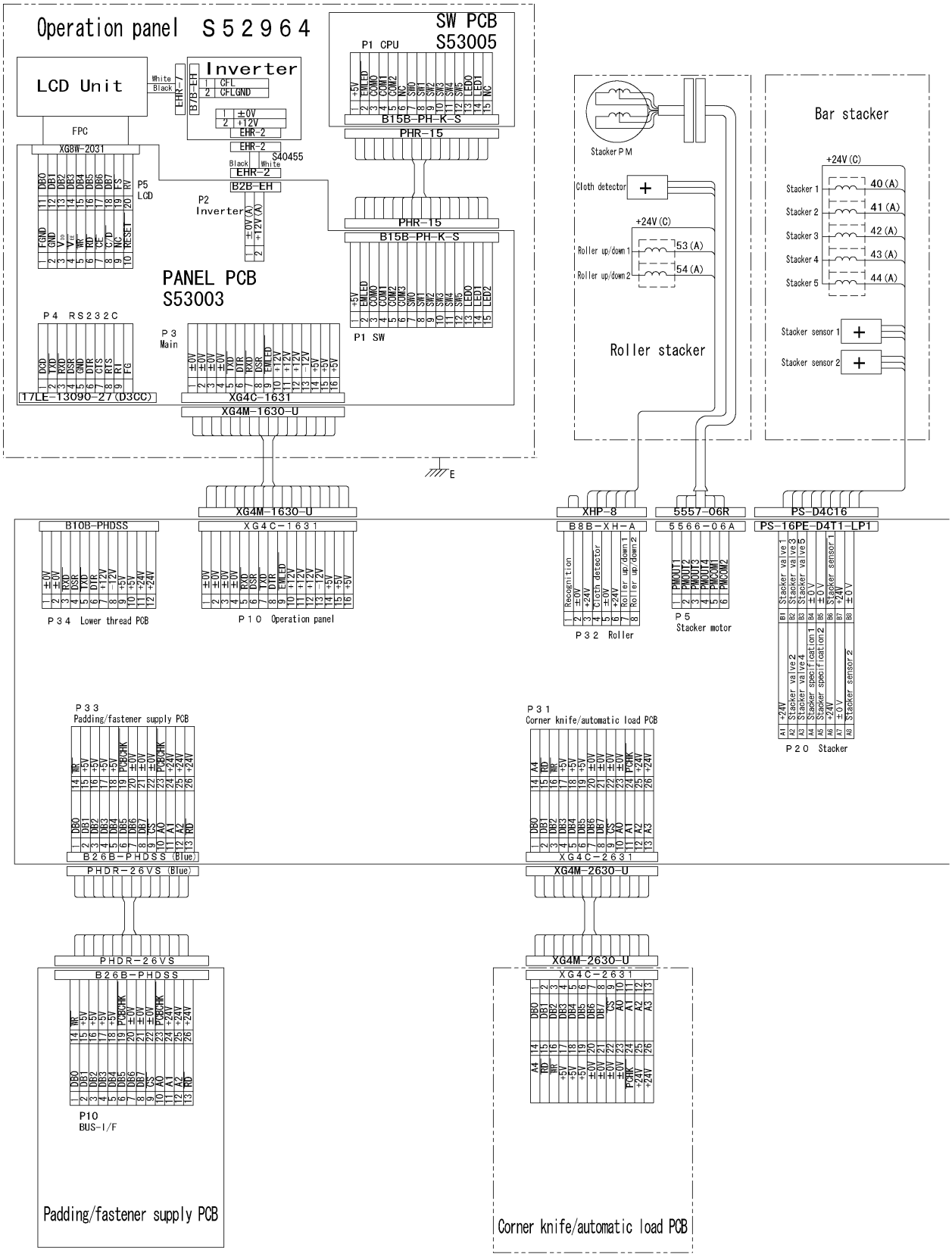


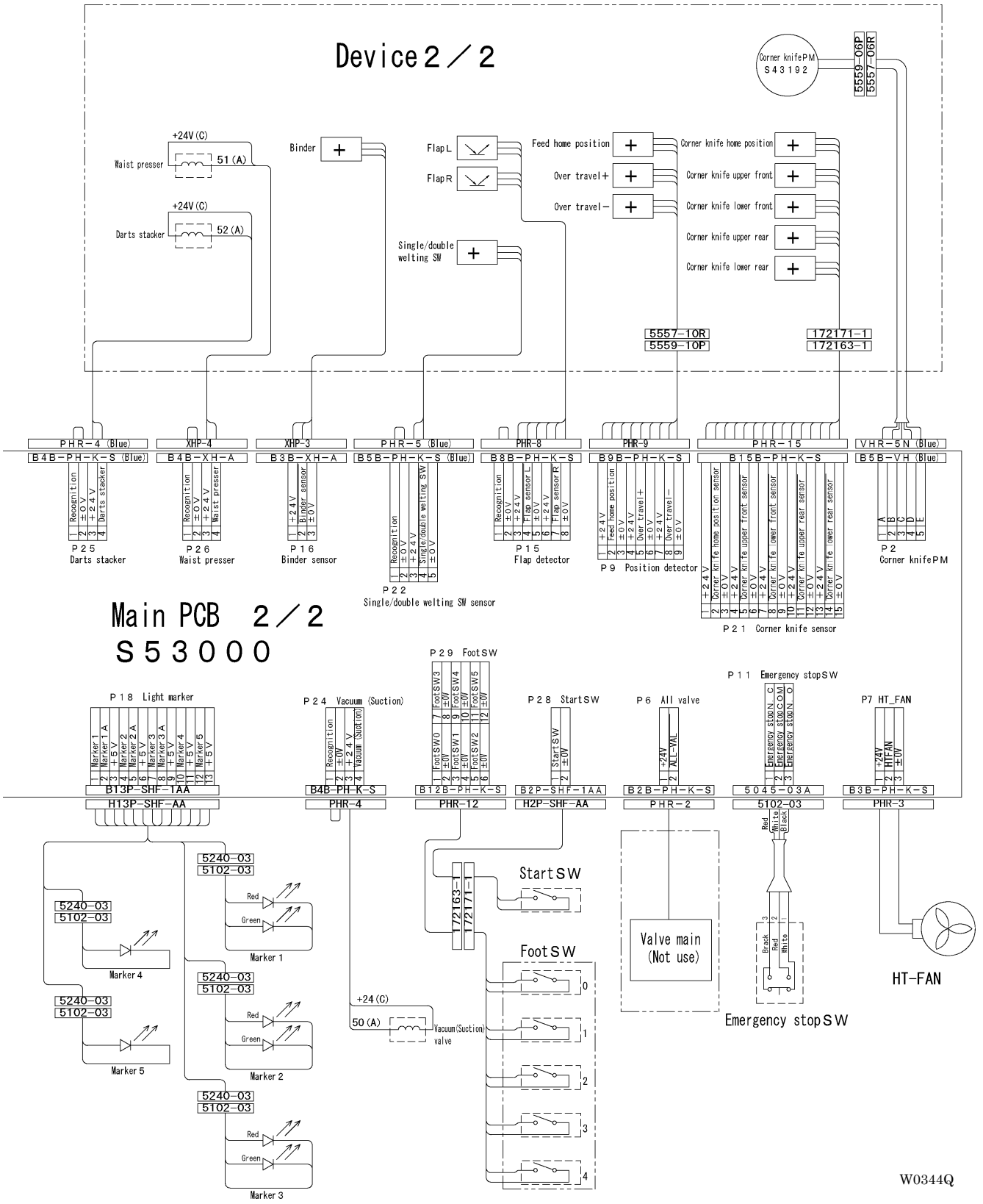
7-3.Control circuit block diagram

<BAS-6200,6220>

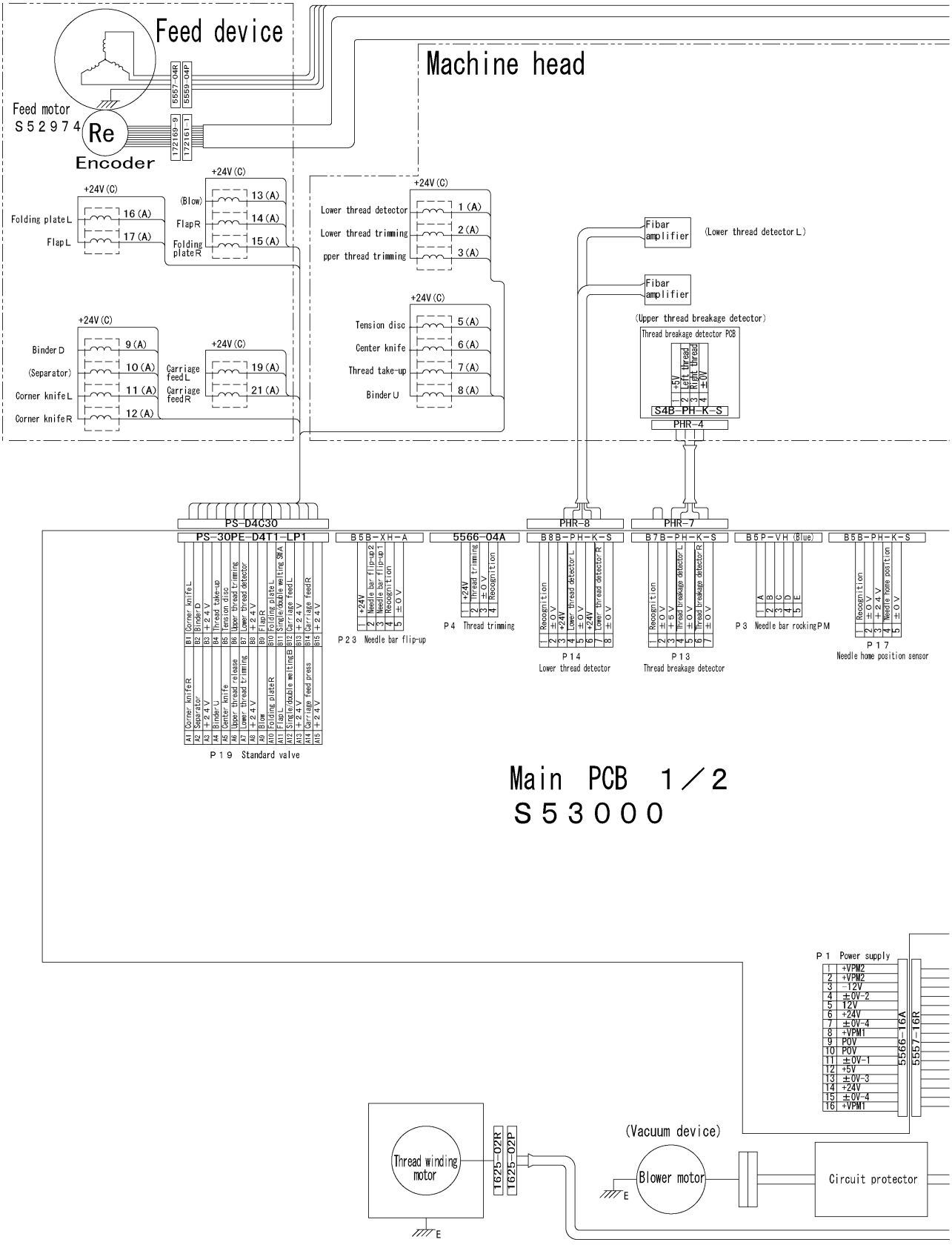


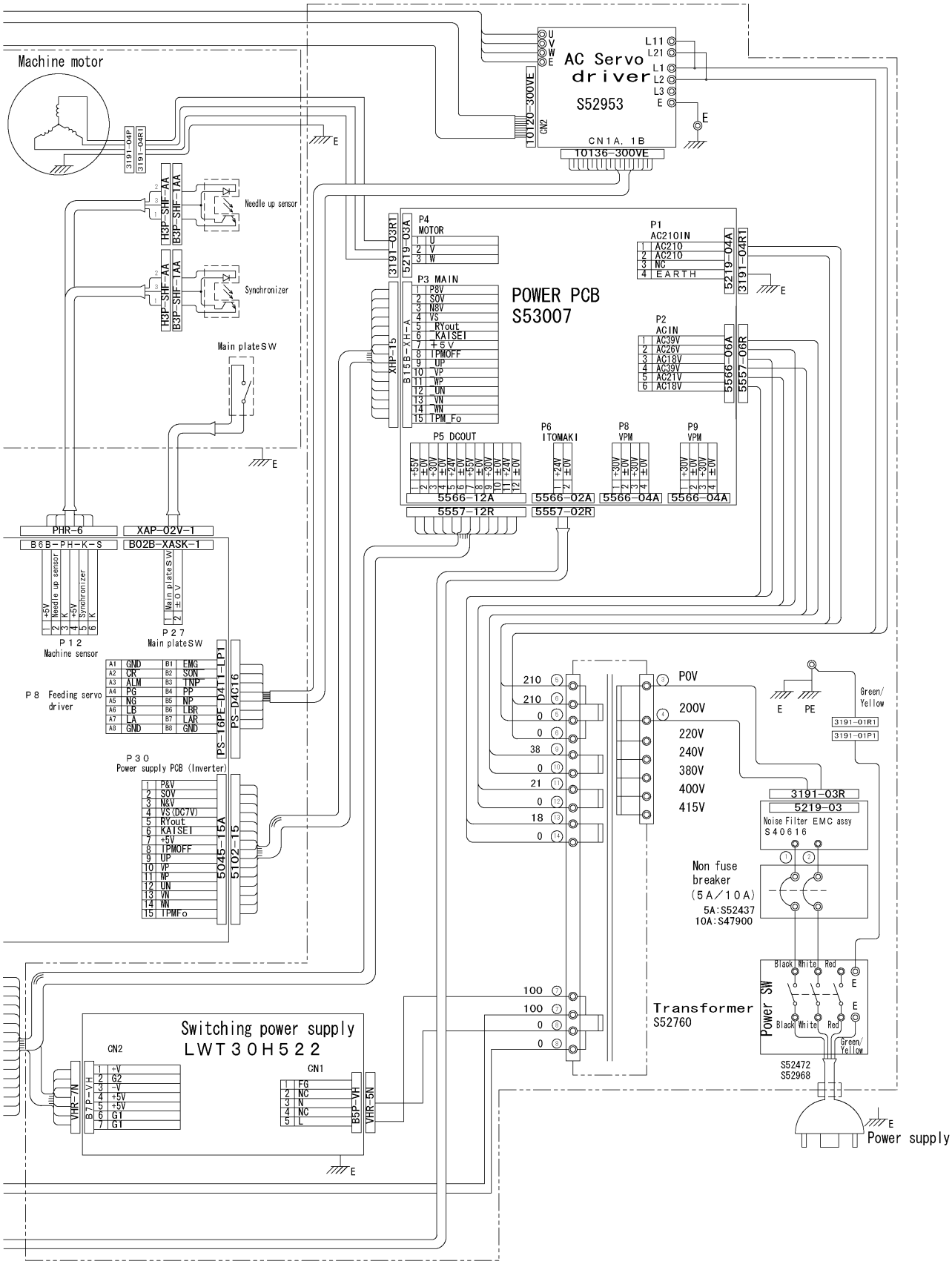

Machine motor
AC Servo driver
S52953
CN1A, 1B
10136-300VE
10120-300VE
CN2
Needle up sensor
Synchronizer
Main plateSW
POWER PCB
S53007
P4 MOTOR
P3 MAIN
P1 AC210IN
P2 ACIN
P5 DCOUT
P6 ITOMAKI
P8 VPM
P9 VPM
PHR-6
XAP-02V-1
B6B-PH-K-S
B02B-XASK-1
P12 Machine sensor
P8 Feeding servo driver
P27 Main plateSW
PS-16PE-D4T1-LP1
PS-D4C16
P30 Power supply PCB (Inverter)
5045-15A
5102-15
P0V
200V
220V
240V
380V
400V
415V
Green/ Yellow
3191-03R
5219-03
Noise Filter EMC assy
S40616
Non fuse breaker
(5A/10A)
5A:S52437
10A:S47900
Transformer
S52760
Power SW
Black White Red
S52472
S52968
Power supply
Switching power supply
LWT30H522
CN2
CN1
W0343Q


Operation panel S52964
LCD Unit
FPC
XG8W-2031
P5 LCD
Inverter
CFL
CFLGND
±0V
+12V
EHR-2
S40455
B2B-EH
P2 Inverter
PANEL PCB
S53003
P4 RS232C
17LE-13090-27(D3CC)
P3 Main
XG4C-1631
XG4M-1630-U
SW PCB
S53005
P1 CPU
B15B-PH-K-S
PHR-15
P1 SW
Stacker P M
Cloth detector
Roller up/down1
Roller up/down2
+24V(C)
53(A)
54(A)
Roller stacker
Bar stacker
Stacker 1
Stacker 2
Stacker 3
Stacker 4
Stacker 5
40(A)
41(A)
42(A)
43(A)
44(A)
Stacker sensor 1
Stacker sensor 2
E
B10B-PHDSS
P34 Lower thread PCB
P10 Operation panel
XHP-8
B8B-XH-A
P32 Roller
5557-06R
5566-06A
P5 Stacker motor
PS-D4C16
PS-16PE-D4T1-LP1
P20 Stacker
P33
Padding/fastener supply PCB
B26B-PHDSS (Blue)
PHDR-26VS (Blue)
PHDR-26VS
B26B-PHDSS
P10
BUS-I/F
Padding/fastener supply PCB
P31
Corner knife/automatic load PCB
XG4C-2631
XG4M-2630-U
Corner knife/automatic load PCB

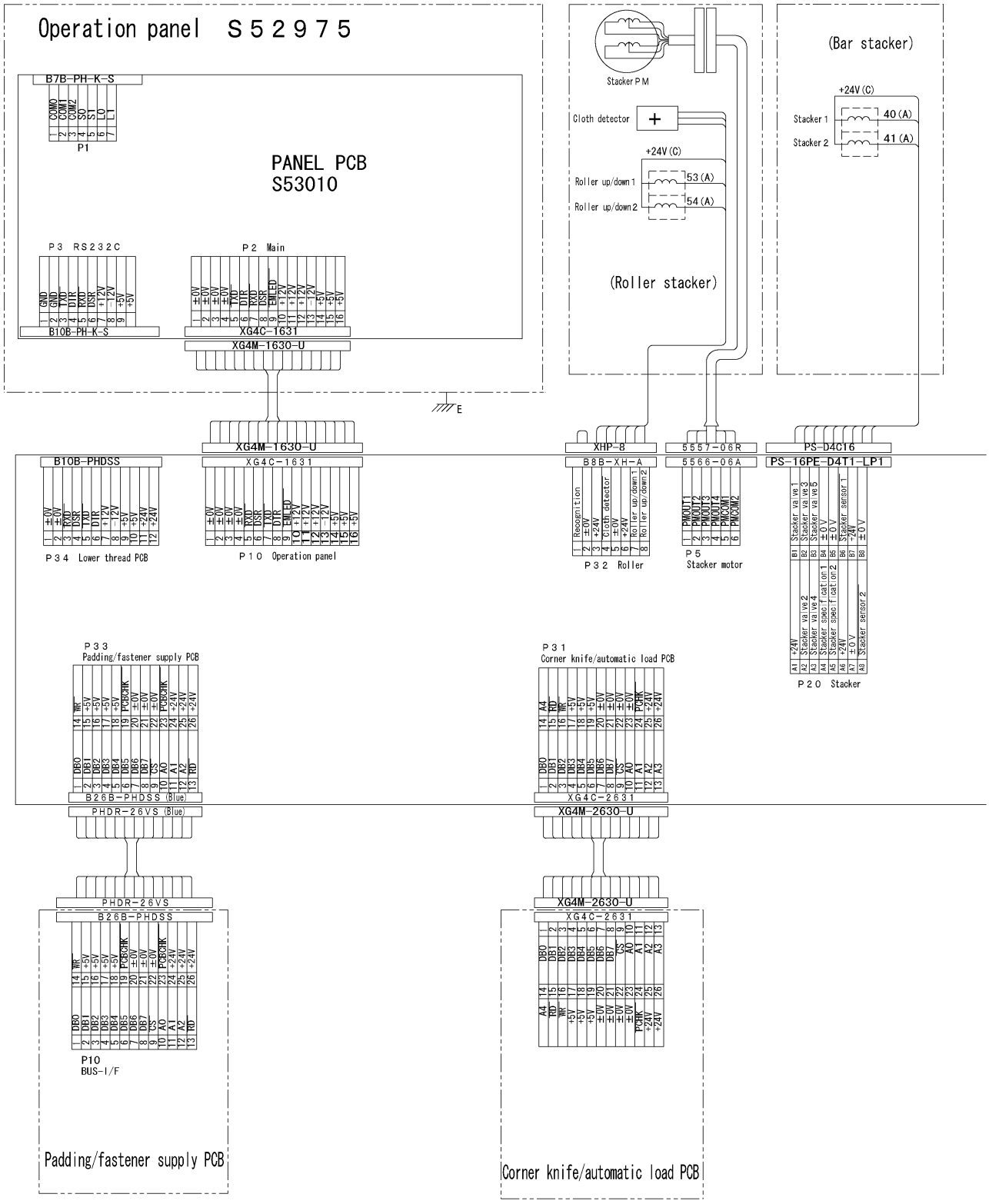

Device 2／2
Corner knife PM
S43192
5559-06P
5557-06R
+24V (C)
Waist presser
51 (A)
+24V (C)
Darts stacker
52 (A)
Binder
Flap L
Flap R
Single/double welting SW
Feed home position
Over travel+
Over travel−
Corner knife home position
Corner knife upper front
Corner knife lower front
Corner knife upper rear
Corner knife lower rear
5557-10R
5559-10P
172171-1
172163-1
PHR-4 (Blue)
B4B-PH-K-S (Blue)
XHP-4
B4B-XH-A
XHP-3
B3B-XH-A
PHR-5 (Blue)
B5B-PH-K-S (Blue)
PHR-8
B8B-PH-K-S
PHR-9
B9B-PH-K-S
PHR-15
B15B-PH-K-S
VHR-5N (Blue)
B5B-VH (Blue)
P25 Darts stacker
P26 Waist presser
P16 Binder sensor
P22 Single/double welting SW sensor
P15 Flap detector
P9 Position detector
P21 Corner knife sensor
P2 Corner knife PM
Main PCB 2／2
S53000
P18 Light marker
P24 Vacuum (Suction)
P29 Foot SW
P28 Start SW
P6 All valve
P11 Emergency stop SW
P7 HT_FAN
B13P-SHF-1AA
H13P-SHF-AA
B4B-PH-K-S
PHR-4
B12B-PH-K-S
PHR-12
B2P-SHF-1AA
H2P-SHF-AA
B2B-PH-K-S
PHR-2
5045-03A
5102-03
B3B-PH-K-S
PHR-3
5240-03
5102-03
Marker 1
Marker 2
Marker 3
Marker 4
Marker 5
Red
Green
Start SW
Foot SW
+24 (C)
50 (A)
Vacuum (Suction) valve
Valve main
(Not use)
Emergency stop SW
HT-FAN
W0344Q

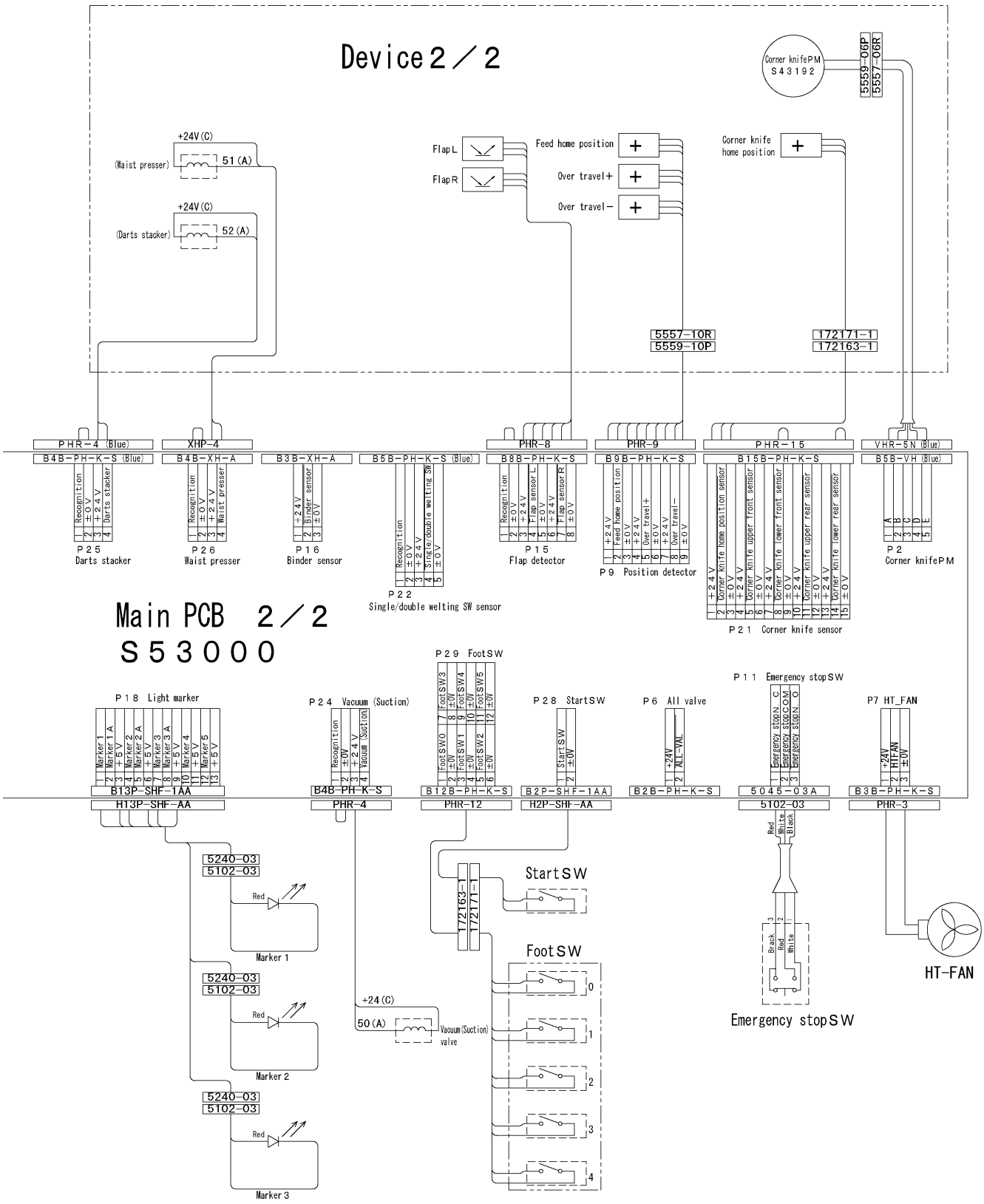
<BAS-6150>


Feed device
Machine head
Feed motor
S52974
Re
Encoder
5557-04R
5559-04P
1721691-9
1721611-1
+24V(C)
Folding plate L
Flap L
16(A)
17(A)
(Blow)
Flap R
Folding plate R
13(A)
14(A)
15(A)
Lower thread detector
Lower thread trimming
pper thread trimming
1(A)
2(A)
3(A)
Tension disc
Center knife
Thread take-up
Binder U
5(A)
6(A)
7(A)
8(A)
Binder D
(Separator)
Corner knife L
Corner knife R
9(A)
10(A)
11(A)
12(A)
Carriage feed L
Carriage feed R
19(A)
21(A)
Fibar amplifier
(Lower thread detector L)
(Upper thread breakage detector)
Thread breakage detector PCB
+5V
Left thread
Right thread
±0V
S4B-PH-K-S
PHR-4
PS-D4C30
PS-30PE-D4T1-LP1
PHR-8
PHR-7
B5B-XH-A
5566-04A
B8B-PH-K-S
B7B-PH-K-S
B5P-VH (Blue)
B5B-PH-K-S
P23 Needle bar flip-up
P4 Thread trimming
P14 Lower thread detector
P13 Thread breakage detector
P3 Needle bar rocking PM
P17 Needle home position sensor
P19 Standard valve
Main PCB 1／2
S53000
P1 Power supply
5566-16A
5557-16R
Thread winding motor
1625-02R
1625-02P
(Vacuum device)
Blower motor
Circuit protector
E


Machine motor
AC Servo driver
S52953
CN1A, 1B
10136-300VE
10120-300VE
CN2
Needle up sensor
Synchronizer
Main plateSW
POWER PCB
S53007
P1
AC210IN
P2
ACIN
P3 MAIN
P4
MOTOR
P5 DCOUT
P6
ITOMAKI
P8
VPM
P9
VPM
XHP-15
B15B-XH-A
PHR-6
B6B-PH-K-S
XAP-02V-1
B02B-XASK-1
P12
Machine sensor
P27
Main plateSW
P8 Feeding servo driver
PS-16PE-D4T1-LP1
PS-D4C16
P30
Power supply PCB (Inverter)
5045-15A
5102-15
Switching power supply
LWT30H522
CN2
CN1
VHR-7N
B7P-VH
B5P-VH
VHR-5N
POV
200V
220V
240V
380V
400V
415V
Green/
Yellow
3191-01R1
3191-01P1
3191-03R
5219-03
Noise Filter EMC assy
S40616
Non fuse
breaker
(5A/10A)
5A:S52437
10A:S47900
Transformer
S52760
Power SW
Black
White
Red
Green/
Yellow
S52472
S52968
Power supply

W0233Q


Operation panel S52975
PANEL PCB
S53010
P1
P3 RS232C
P2 Main
XG4M-1630-U
XG4C-1631
P34 Lower thread PCB
P10 Operation panel
Stacker PM
Cloth detector
Roller up/down1
Roller up/down2
53(A)
54(A)
(Roller stacker)
(Bar stacker)
Stacker 1
Stacker 2
40(A)
41(A)
P32 Roller
P5 Stacker motor
P20 Stacker
P33
Padding/fastener supply PCB
P31
Corner knife/automatic load PCB
XG4M-2630-U
XG4C-2631
P10
BUS-I/F
Padding/fastener supply PCB
Corner knife/automatic load PCB


Device 2 / 2
Corner knife PM S43192
5559-06P
5557-06R
+24V(C)
(Waist presser)
51(A)
+24V(C)
(Darts stacker)
52(A)
Flap L
Flap R
Feed home position
Over travel+
Over travel−
Corner knife home position
5557-10R
5559-10P
172171-1
172163-1
PHR-4 (Blue)
B4B-PH-K-S (Blue)
XHP-4
B4B-XH-A
B3B-XH-A
B5B-PH-K-S (Blue)
PHR-8
B8B-PH-K-S
PHR-9
B9B-PH-K-S
PHR-15
B15B-PH-K-S
VHR-5N (Blue)
B5B-VH (Blue)
Recognition
Darts stacker
Waist presser
Binder sensor
Single/double welting SW
Flap sensor L
Flap sensor R
Feed home position
Over travel+
Over travel−
Corner knife home position sensor
Corner knife upper front sensor
Corner knife lower front sensor
Corner knife upper rear sensor
Corner knife lower rear sensor
P25 Darts stacker
P26 Waist presser
P16 Binder sensor
P22 Single/double welting SW sensor
P15 Flap detector
P9 Position detector
P21 Corner knife sensor
P2 Corner knife PM
Main PCB 2 / 2
S53000
P18 Light marker
P24 Vacuum (Suction)
P29 FootSW
P28 StartSW
P6 All valve
P11 Emergency stop SW
P7 HT_FAN
B13P-SHF-1AA
H13P-SHF-AA
B4B-PH-K-S
PHR-4
B12B-PH-K-S
PHR-12
B2P-SHF-1AA
H2P-SHF-AA
B2B-PH-K-S
5045-03A
5102-03
B3B-PH-K-S
PHR-3
5240-03
5102-03
Red
Marker 1
Marker 2
Marker 3
+24(C)
50(A)
Vacuum (Suction) valve
StartSW
FootSW
Emergency stop SW
HT-FAN

W0290Q

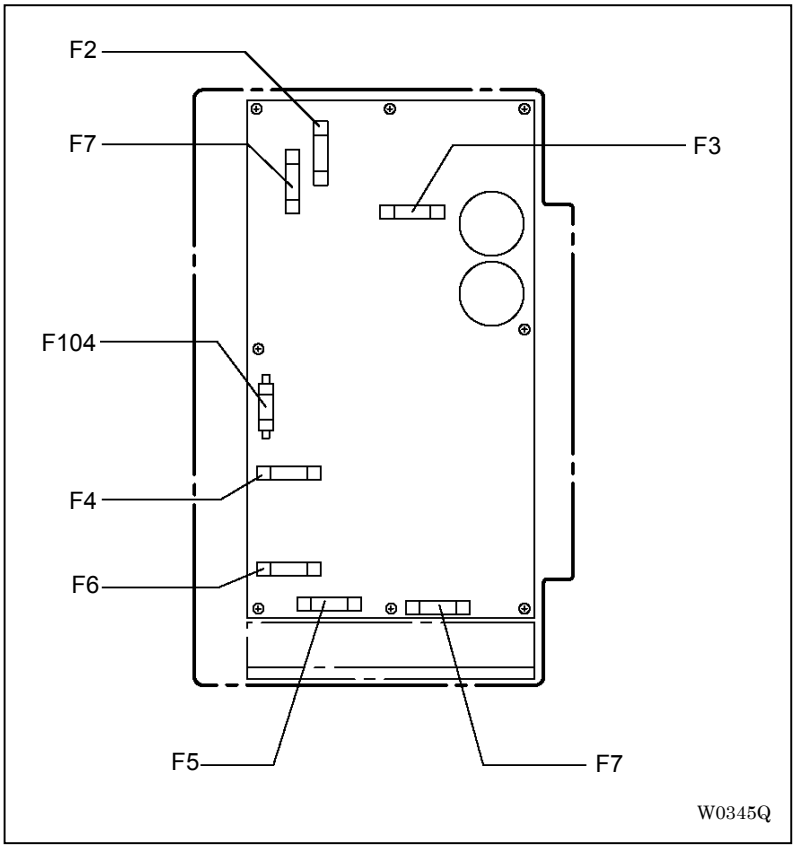
7-4. Power supply related

Be sure to turn off the power supply switch before replacement of power supply related parts.

If an operation with the power turned on is required, be sure not to touch any parts with high voltages or to short-circuit by mistake.

7-4-1. Fuses

The following fuses are located on the power supply PCB.

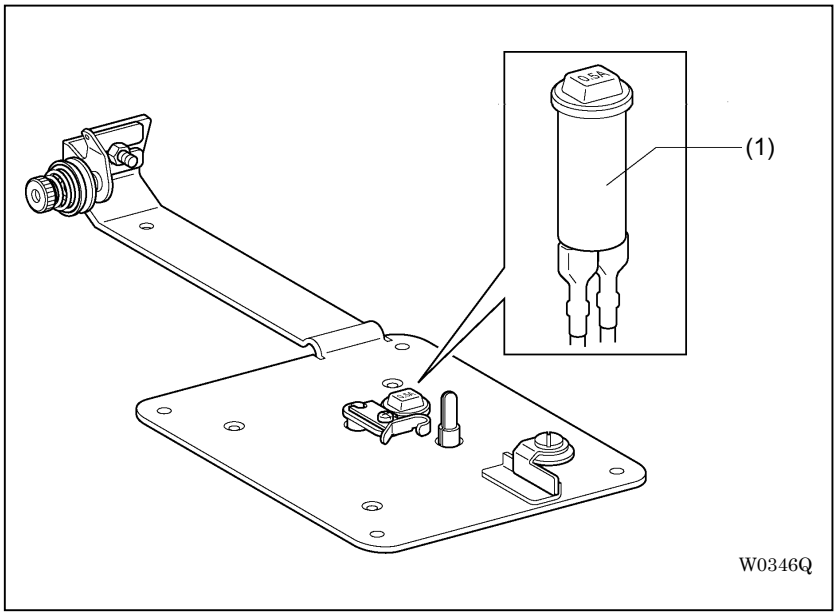


Fuse No.	Type	Purpose	Voltage
F1, 2	Glass tube fuse 6 A / 250 V	Inverter power supply to drive the machine motor (Primary side)	AC 210 V
F3	Glass tube fuse 5 A / 250 V (Quick blow)	Inverter power supply to drive the machine motor (Secondary side)	DC 30 V
F4	Glass tube fuse 6 A / 125 V	Power supply to drive the 5-phase pulse motor (For needle swing and corner knife)	DC 55 V
F5	Glass tube fuse 5 A / 125 V	Power supply to drive the 2-phase pulse motor (For roller stacker)	DC 30 V
F6	Glass tube fuse 5 A / 125 V	Power supply for magnetic valve Power supply for sensor	DC 24 V
F7	Glass tube fuse 2 A / 125 V	Power supply for bobbin winding motor	DC 24 V
F104	Glass tube fuse 2 A / 250 V (Not replaceable)	Inverter power supply to drive the machine motor * Fuses are not replaceable. Change the PCB if necessary.	DC 300 V

For replacement of fuses, refer to the table below describing each status when it blows. Be sure to replace with a fuse of the same capacity and kind.

Fuse No.	Status of abnormality
F1, 2	[E-211] is displayed when the power is turned on.
F3, 104	The machine motor does not rotate when sewing, and [E-210] is displayed.
F4	[E-552] is displayed when the power is turned on. The pulse motor to drive corner knives does not work, and [E-800] is displayed. The pulse motor to drive needle rocker does not work, and [E-205] is displayed.
F5	[E-551] is displayed when the power is turned on. The pulse motor for roller stackers does not rotate.
F6	[E-550] is displayed when the power is turned on. The magnetic valve does not work. When the power is turned on, [E-301] which indicates overrun error of the feeding is displayed.
F7	The bobbin winding motor does not rotate.

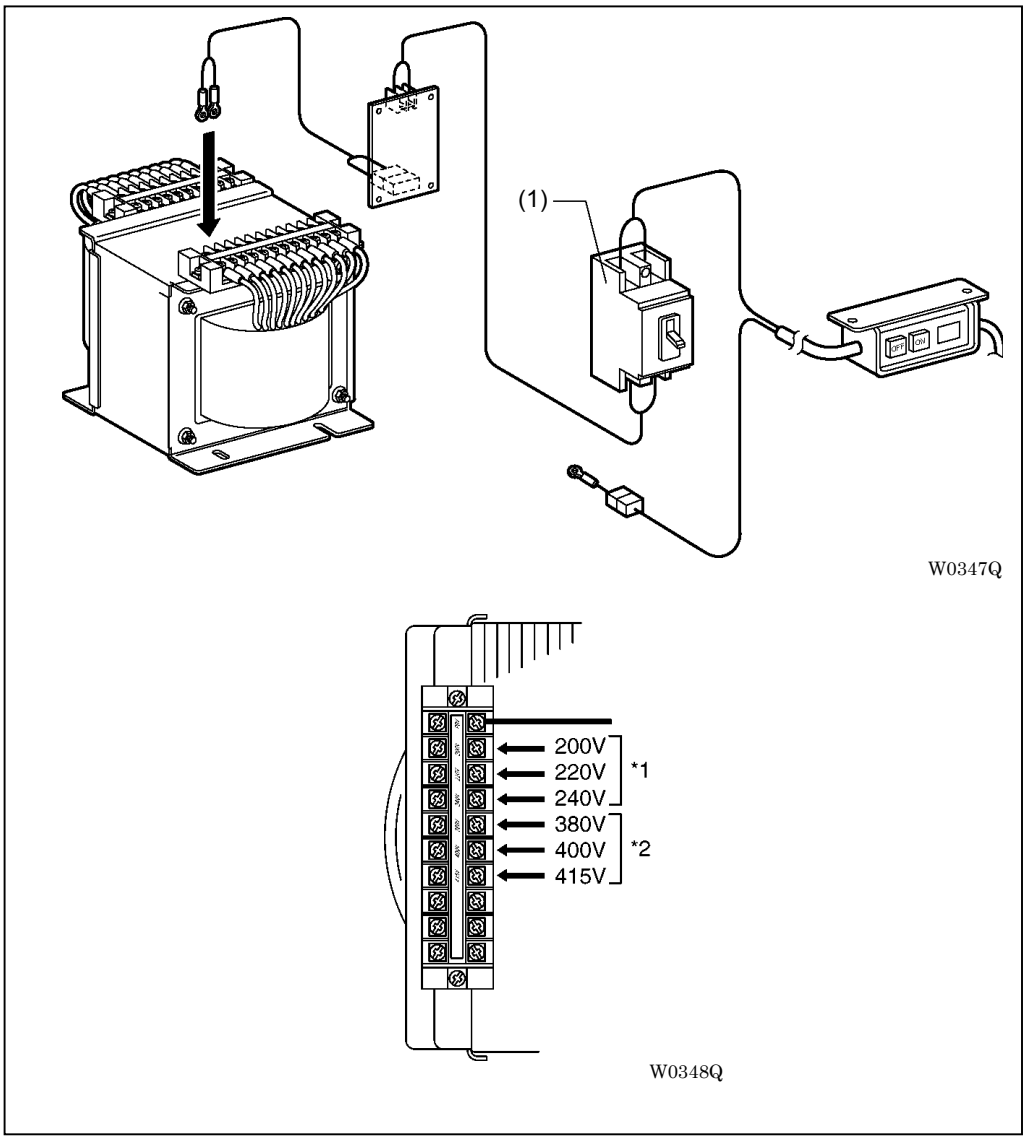
7-4-2. Circuit protector of the bobbin winding motor



The protector (1) breaks the circuit when an excess tension is sustained in thread winding or when the motor locks with tangled threads on the bobbin winder shaft.

To recover from this, push protector (1) after a brief interval. Confirm that the tension of thread winding is not too strong.

7-4-3. Transformation of the power supply voltage



The voltage for the machine can be changed to 200, 220, 240, 380, 400 or 415 V.

To change the voltage, use the connecting tap on the primary side of the transformer. Fix the P0V and switch the other one for the change.

The breaker (1) sometimes need to be changed according to the voltage or the region. Refer to the table below.

	Voltage (V)	Breaker capacity	Part number (Product name)
*1	200, 220, 240	10 A	S47900000 (Breaker M10A)
*2	380, 400, 415	5 A	S52437000 (Breaker M5A)

7-5.PCB related

7-5-1. Functions of PCBs

Part	PCB	Function	Sign on PROM
Control box	Main PCB	User interface	MN-**
		Communication with the panel	SE-**
		Control of the machine head	MT-**
		Control of the clamp and the binder	
		Control of the corner knife	
		Control of the stacker	
		Control of optional devices	
	Power supply PCB	Power supply for drive sources (DC +55 V, +30 V, +24 V) Driving of the machine motor	N/A
	Switching power supply (Fixed on the power supply PCB)	Power supply for controls (DC +5 V, ±12 V)	N/A
Operation panel	Panel LCD PCB	Control of the LCD	PL-**
		Communication with the main PCB	
		Communication with external	
		Clock management	
	Panel SW PCB	Control of the operation panel switching	N/A

* represents the version.

7-5-2. PROM

* PROM versions can be checked on the operation panel as well. Refer to the followings to show it:

BAS-6200 and 6220: “PROM version display” in “Chapter 8 System configuration” of the manual

BAS-6150: “ROM version display” in “Chapter 7 Environmental setting” of the manual

* PROMs are upgraded irregularly. Since former data (sewing conditions and system configurations) may be initialized by force when PROMs are replaced depending on the combination of versions old and new, be sure to record former data. Take notes of the sewing conditions and the system configurations, referring to the procedure in “7-5-4. Data backup”.

7-5-3. Replacement of PCBs

[Note] Do not pull at the harness when disconnecting connectors due to the fear of snapping.

<Main PCB>

Since the data is kept on the main PCB, reconfiguration of those data is needed after replacement of the PCB. Be sure to record the sewing conditions and the system configurations referring to the procedure in “7-5-4. Data backup”.

1. Open the control box and disconnect all connectors wired on the main PCB.
2. Detach the main PCB from spacers (7 pieces).
3. Take off PROMs (3 pieces) from the detached main PCB, and reattach them to a new main PCB.

* Be careful of direction of the PROM.

4. Attach the main PCB to spacers (7 pieces).

* Be careful not to bend the board as much as possible.

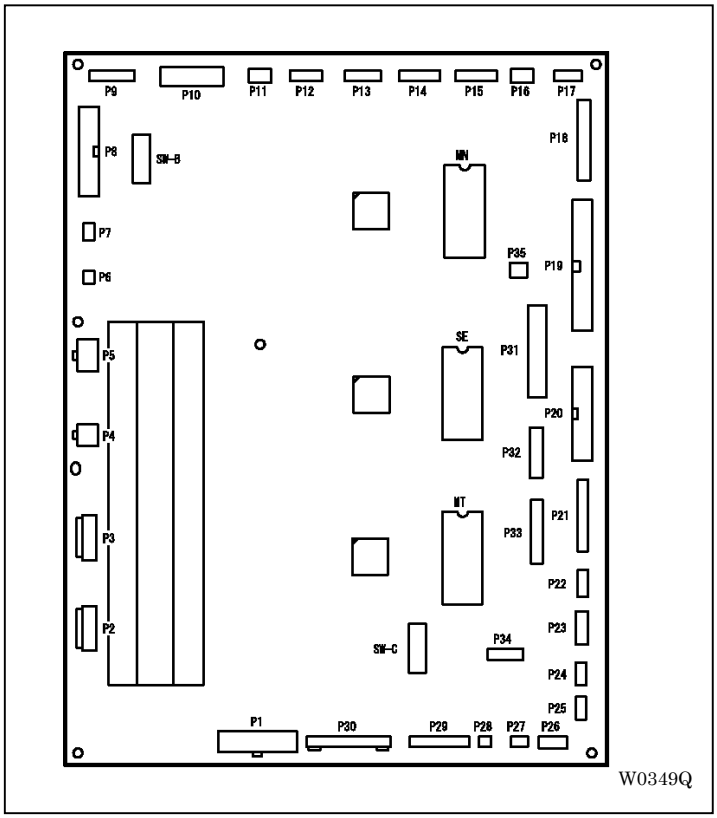
5. Connect all connectors as they were.
6. Turn on the dip switch B-7 and B-8 on the main PCB, then turn on the power supply.

* The memory is initialized here.

7. Input the gauge size, date and time according to the instruction on the display. All the data are initialized here.
8. Turn off the power supply. Turn off the dip switch B-7 and B-8, then turn on the power supply again.
9. Press the start switch. The clamp home positioning is performed.
10. Input the data kept before the PCB replacement referring to the procedure below respectively:

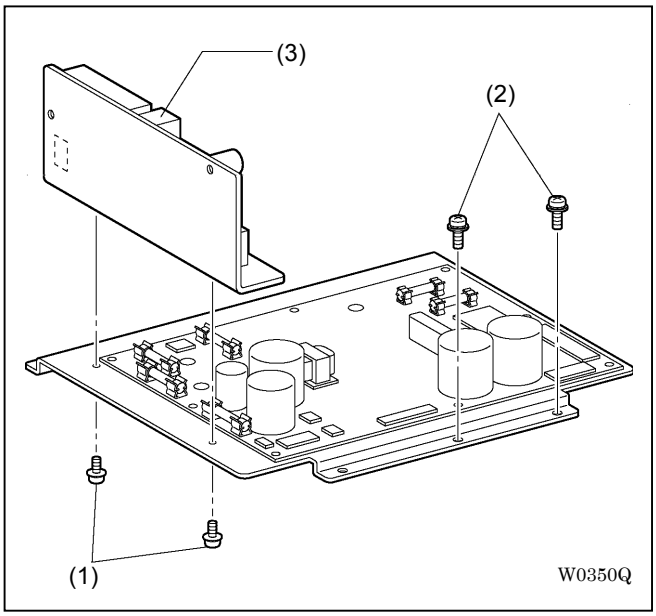
    BAS-6220 and 6200: “Chapter 3 Settings” and “Chapter 8 System configuration” of the manual

    BAS-6150: “Chapter 3 Settings” and “Chapter 7 Environmental setting” of the manual



NO.	Connected to	NO.	Connected to
P1	Main power supply	P19	Main valve
P2	Pulse motor for corner knife	P20	Bar stacker valve
P3	Pulse motor for needle rocker	P21	Corner knife home position, Cylinder sensor
P4	Not in use	P22	Single/double welt sensor
P5	Pulse motor for roller stacker	P23	Change needle valve
P6	Not in use	P24	Vacuum valve
P7	Fan	P25	Dart valve
P8	Servo driver for feeding	P26	Waist valve
P9	Feeding sensor	P27	Face plate switch
P10	Operation panel	P28	3-Pedal foot switch (Right)
P11	Emergency stop switch	P29	3-Pedal foot switch (Left, middle)
P12	Sewing sensor	P30	Inverter
P13	Thread breakage sensor	P31	Not in use
P14	Lower thread detection	P32	Roller valve
P15	Flap sensor	P33	Not in use
P16	Binder up/down cylinder sensor	P34	Not in use
P17	Needle swing original position sensor	P35	Not in use
P18	Light marker		

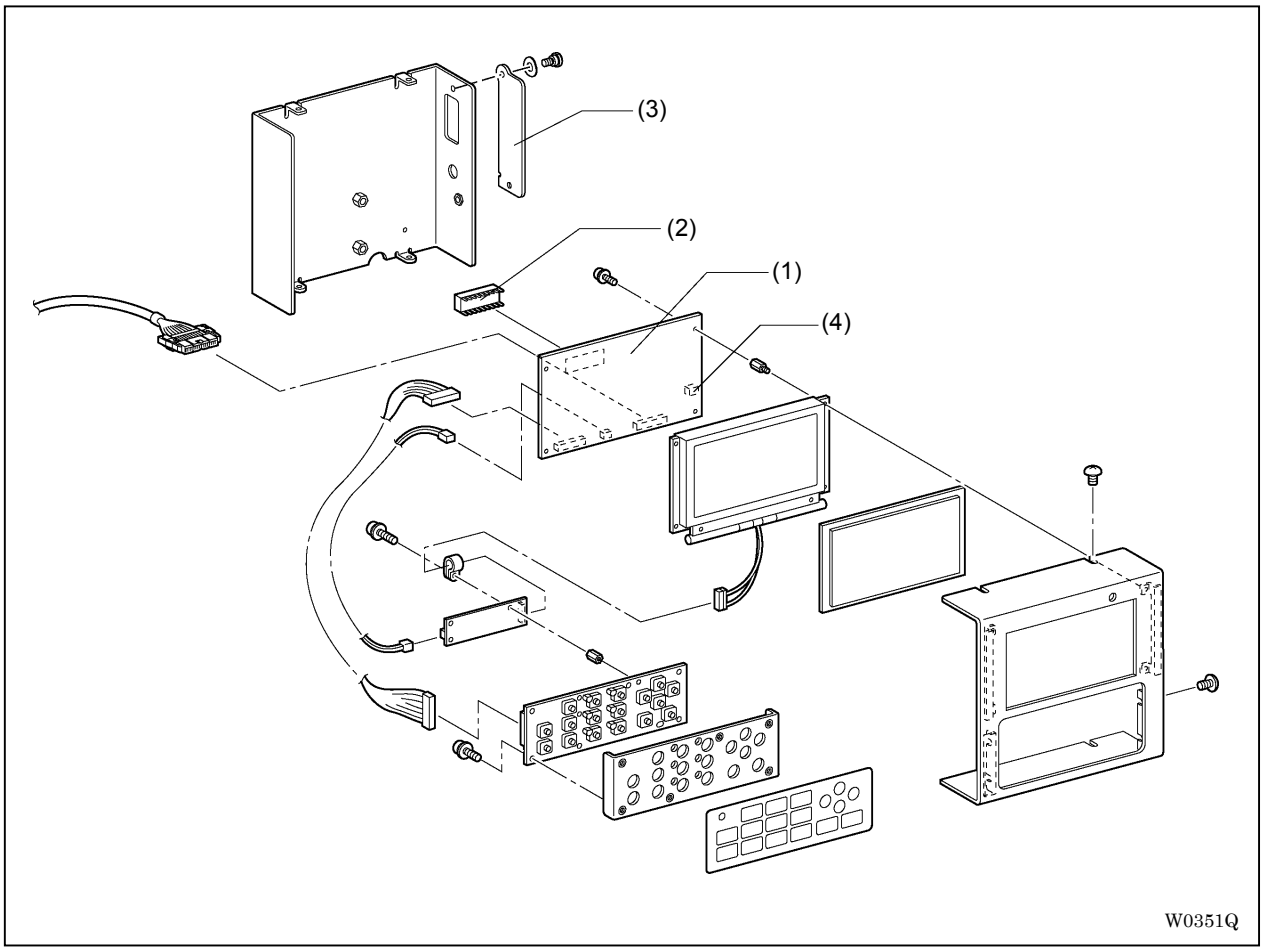
<Power supply PCB>



1. Open the control box and disconnect all connectors wired on the main PCB.
2. Unscrew short fastening screws (1) (5 pieces) and long fastening screw (2), and detach the power supply PCB with its aluminum board.

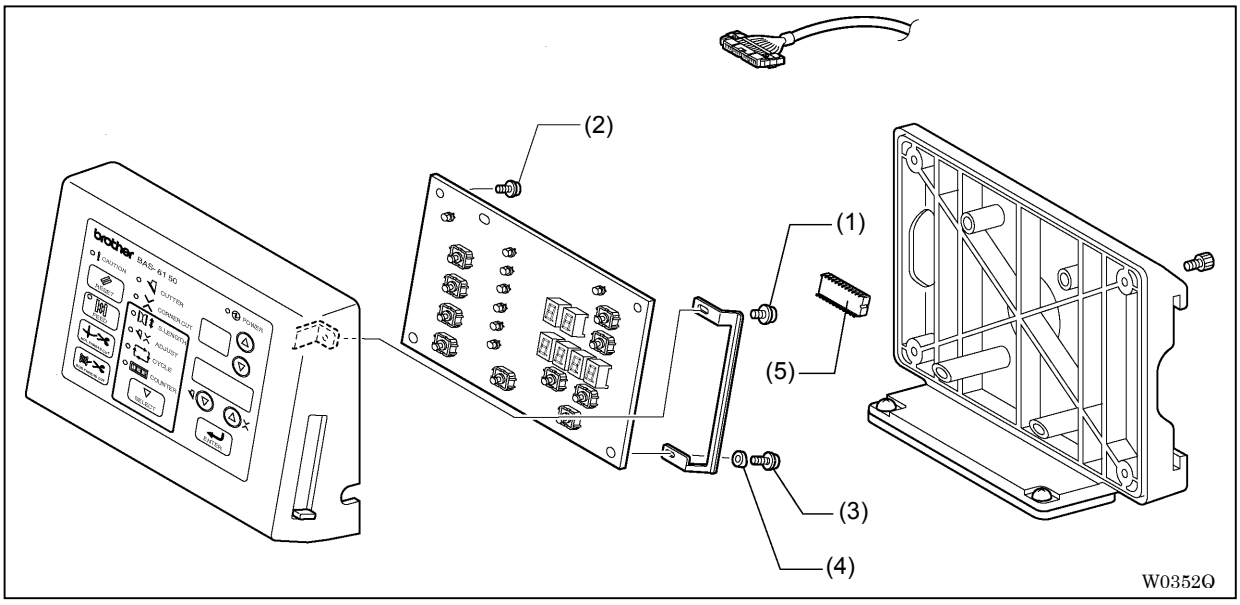
   Detach switching power supply (3) and reattach it to a new power supply PCB.
3. Attach the power supply PCB to the control box and connect all connectors as they were.

<Replacement of the operation panel LCD PCB (BAS-6200 and 6220)>



1. Open the operation panel and disconnect all connectors wired on the LCD PCB (1).
2. Unscrew fastening screws (4 pieces) and detach LCD PCB (1).
   Detach PROM (2) and reattach it to a new LCD PCB.
3. Attach the LCD PCB and connect all connectors as they were.
4. Turn on the power supply and adjust the contrast of the LCD display.
   Open the cover (3) on the right side of the operation panel and rotate volume (4) with a fine cross-point screwdriver etc. to adjust it.

<Replacement of the panel PCB (BAS-6150)>



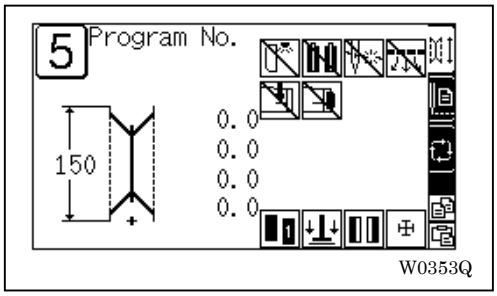
1. Open the operation panel and disconnect all connectors wired on the panel PCB.
2. Detach M4 fastening screw (1), M3 short fastening screws (2) (2 pieces), M3 Long fastening screws (3) (2 pieces) and board pressors (4) (2 pieces).
3. Take off PROM (5) from the detached panel PCB and reattach it to a new panel PCB.
4. Attach the panel PCB and connect all connectors as they were.

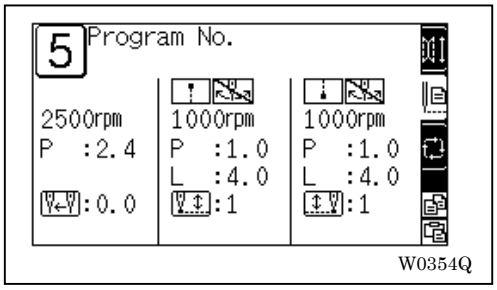
7-5-4. Data backup

* Follow the procedure below to record the sewing conditions and the system configurations (Environmental setup in BAS-6150 models).
  [Sewing condition setting] Sets conditions about sewing with the machine.
  [System configuration] (Environmental setup in BAS-6150 models) Sets general actions of the machine necessary for the operation.
* Programs may not be recalled due to some errors of the machine. Make it a habit to record the program.

1. Press “PROGRAM” (“SELECT” in BAS-6150 model) key and write down all contents in the program No. 1 to 20 (No. 1 to 10 in BAS-6150 model) shown on each screen.

* No need to record programs not in use.

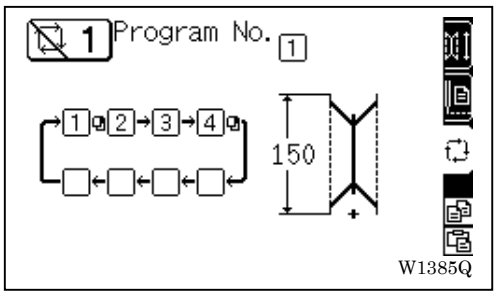




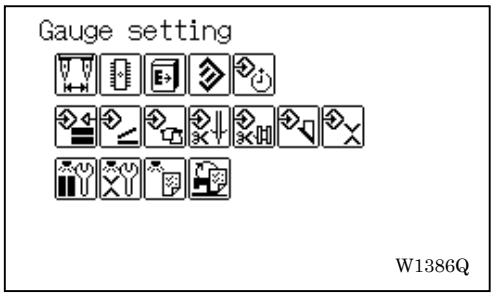
The cycle program has 10 types with the number of 1 to 10 (5 types in BAS-6150 model).

Record the contents of each cycle program on memorandums etc.

* No need to record programs not in use.

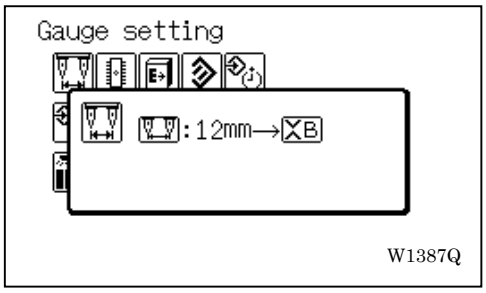


2. Hold “ENTER” key down and press “PROGRAM” (“SELECT” in BAS-6150 model) key.
   The screen below will be displayed.

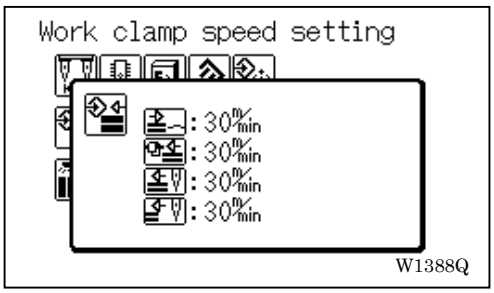


3. Record the settings shown on the screen described below on memorandums etc.

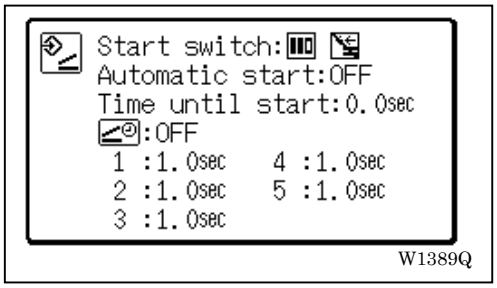
(1) Gauge setting ([0] [GAUG] in BAS-6150 model)



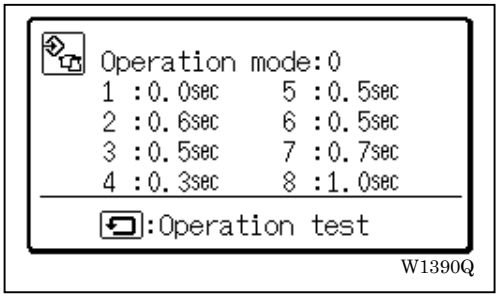
(2) Feeding speed setting ([8] [SETS], [9] [STKS], [10] [DWLS], [11] [ENDS] in BAS-6150 model)



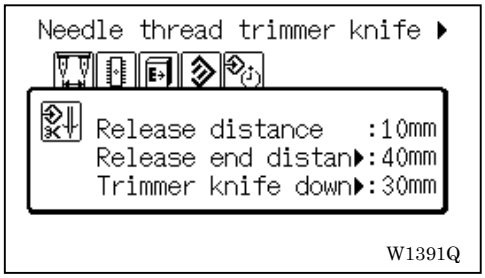
(3) Foot switch setting ([17] [SSAS], [19] [AUTS], [20] [STRW], [22] [FTPG] in BAS-6150 model)



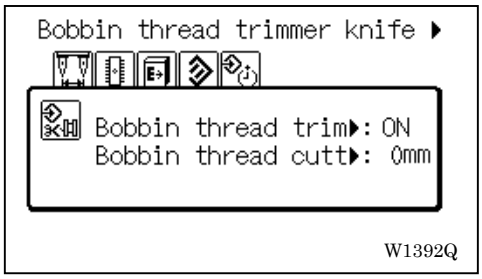
(4) Stacker setting ([40] [STKM], [41] [STK1], [42] [STK2], [43] [STK3], [44] [STK4], [45] [STK5], [46] [STK6], [47] [STK7], [48] [STK8] in BAS-6150 model)



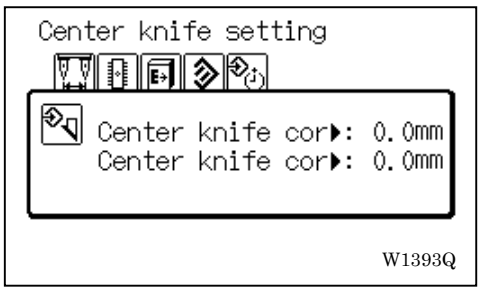
(5) Upper thread trimming knife setting ([23] [UTRL], [24] [UTRT], [25] [UTDL] in BAS-6150 model)



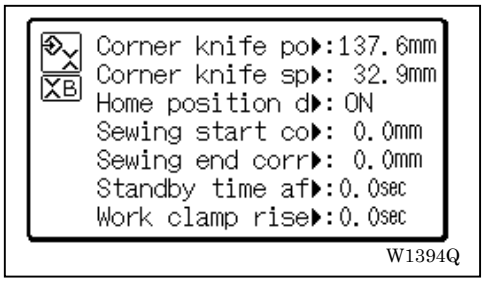
(6) Lower thread trimming knife setting ([26] [BTFC], [27] [BTCL] in BAS-6150 model)



(7) Center knife setting ([12] [CTOS], [13] [CTOE] in BAS-6150 model)

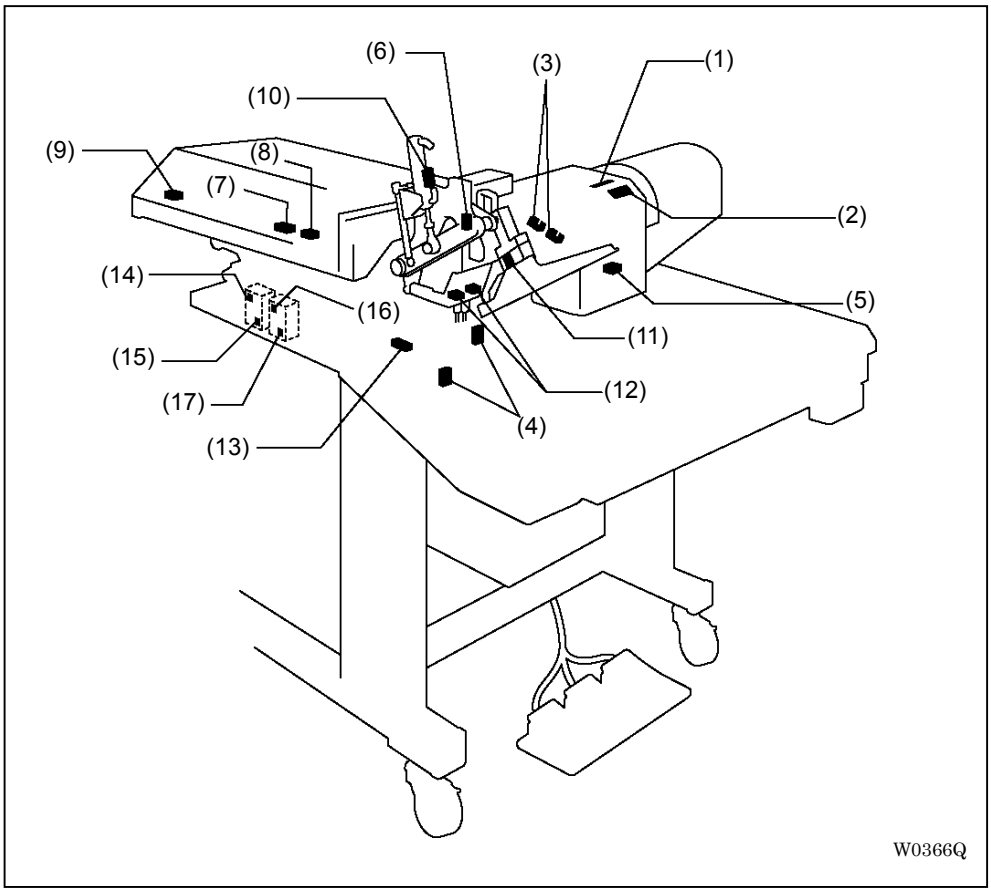


(8) Corner knife setting ([1] [CORL], [2] [CORP], [3] [CRUW], [4] [CRDW], [15] [CROS], [16] [CROE], [14] [CROD] in BAS-6150 model)



7-6.Sensor related

7-6-1. Position



1	Machine needle up sensor	11	Single/double welt sensor (BAS-6200 and 6220 models)
2	Machine synchronizing sensor	12	Flap sensor (Optional in BAS-6200 model and 6150 model)
3	Machine upper thread breakage sensor (Optional in BAS-6150 model)	13	Corner knife home position sensor
4	Machine lower thread detection sensor (Option)	14	Backward corner knife up sensor (BAS-6200 and 6220 models)
5	Needle swing original position sensor (BAS-6200 and 6220 models)	15	Backward corner knife down sensor (BAS-6200 and 6220 models)
6	Face plate open/close switch	16	Forward corner knife up sensor (BAS-6200 and 6220 models)
7	Feed original position sensor	17	Forward corner knife down sensor (BAS-6200 and 6220 models)
8	Feed overrun sensor (Forward)		
9	Feed overrun sensor (Backward)		
10	Binder sensor (BAS-6200 and 6220 models)		

7-6-2. Function and connection lists

Refer to “Chapter 8 System configuration” (“Chapter 7 Environmental setup” in BAS-6150 model) of the manual for how to switch to the sensor check mode.

1. Machine needle up sensor

A photo sensor to detect the needle up of the machine.

When in malfunctions of this sensor such as disconnection or maladjustment, [E-200] or [E-201] will be displayed.

Refer to “6-6-9. Adjustment of the sewing sensor” for the adjustment.

Connector	Pin No.	Signal name
P12	1	+5 V
	2	Needle up signal
	3	K

→

Sensor check mode display	Status
ON	Needle up
OFF	Other than needle up

2. Machine synchronizing sensor

A photo sensor for the synchronization of the machine.

When in malfunctions of this sensor such as disconnection or maladjustment, [E-200], [E-202] or [E-210] will be displayed.

Refer to “6-6-9. Adjustment of the sewing sensor” for the adjustment.

Connector	Pin No.	Signal name
P12	4	+5 V
	5	Synchronize
	6	K

→

Sensor check mode display	Status
ON/OFF	Switches ON and OFF of the mode with every turn of the pulley
0 to 24	Changes from 0 to 24 with one counterclockwise turn of the pulley (Will be reset to 0 when the needle up sensor turns on)

3. Machine upper thread breakage sensor

A photo sensor to detect the upper thread breakage of the machine.

This watches thread movements between slits when sewing to detect the upper thread breakage.

When in malfunctions of this sensor such as disconnection or maladjustment, [E-600], [E-601] or [E-602] will be displayed.

The upper thread breakage function can not be set on the operation panel if the recognition signal (the short circuit between the No. 1 and No. 2 pins) does not exist.

Connector	Pin No.	Signal name
P13	1	
	2	±0 V
	4	Upper thread breakage on the left
	5	±0 V
	6	Upper thread breakage on the left
	7	±0 V

Sensor check mode display	Status
ON	Thread fluctuation exists
OFF	Thread fluctuation does not exist

* The existence of a thread can be recognized by detecting these ON/OFF signals intermittently when sewing.

4. Machine lower thread detection sensor

A photoelectric sensor in optical fiber system, to detect the remains of the lower thread in the machine.

This recognizes that the remains of the lower thread is excessively small when it detects the reflection from the bobbin (special bobbin for lower thread detection) in sewing.

When in malfunctions of this sensor such as disconnection or maladjustment, or when a special bobbin for lower thread detection was not used here, the errors of [E-610], [E-611] or [E-612] may not be displayed even if the lower thread has run out, or in reverse, they may be displayed despite enough thread remains.

The lower thread detection can not be set on the operation panel if the recognition signal (the short circuit between the No. 1 and No. 2 pins) does not exist.

Refer to “4-2. Lower thread detection” for the adjustment.

Connector	Pin No.	Signal name
P14	1	Recognition signal
	2	±0 V
	3	+24 V
	4	Lower thread remains on the right
	5	±0 V
	6	+24 V
	7	Lower thread remains on the right
	8	±0 V

Sensor check mode display	Status
ON	Lower thread does not exist (The reflection is detected) *
OFF	Lower thread exists (The reflection is not detected)

* The emptiness of the lower thread can be recognized when the light is reflected on 2 flat faces on the bobbin.

5. Needle rocker home position sensor

A magnet sensor for the home position detection of the needle rocker motor.

When in malfunctions of this sensor such as disconnection, [E-205] will be displayed during positioning or at the sewing start.

In maladjustment cases, the needle bar after the home position detection will be slanted and not vertical.

If the recognition signal (the short circuit between the No.1 and No.2 pins) does not exist, the needle rocker and needle feed settings can not be set on the operation panel, and also the needle bar can not be retained by the motor.

Refer to “6-6-8. Adjustment of the needle rocker home position sensor” for the adjustment.

Connector	Pin No.	Signal name
P17	1	Recognition signal
	2	±0 V
	3	+24 V
	4	Needle rocker home position
	5	±0 V

→

Sensor check mode display	Status	Sensor LED status
ON	Sensor dog is detected	ON
OFF	Sensor dog not detected	OFF

6. Face plate open/close switch

This switch is for the status detection of the face plate.

When in malfunctions of this sensor such as disconnection or maladjustment, [E-207], [E-208] or [E-209] will be displayed.

Connector	Pin No.	Signal name
P27	1	Face plate
	2	±0V

→

Sensor check mode display	Status
ON	Face plate closed
OFF	Face plate open

7. Feed original position sensor

A magnet sensor for the feed original position detection of the feeder.

When in malfunctions of this sensor such as disconnection, the feeder will be moved to the forward limitation during the positioning, and [E-301] will be displayed.

In maladjustment cases, the feeder may move forward to collide mechanically and display [E-303].

Refer to “6-2-7. Adjustment of the home position sensor and the over run sensor” for the adjustment.

Connector	Pin No.	Signal name
P9	1	+24 V
	2	Feed original position
	3	±0 V

→

Sensor check mode display	Status	Sensor LED status
ON	Sensor dog is detected	ON
OFF	Sensor dog not detected	OFF

8. Feed overrun sensor (Forward)

A magnet sensor for the feed overrun detection in the forward side.

When in malfunctions of this sensor such as disconnection, [E-301] will be displayed even if the feeder is not in the overrun position.

Refer to “6-2-7. Adjustment of the home position sensor and the over run sensor” for the adjustment.

Connector	Pin No.	Signal name
P9	7	+24 V
	8	Feed OV -
	9	±0 V

→

Sensor check mode display	Status	Sensor LED status
OFF	Normal	ON
ON	Overrun	OFF

9. Feed overrun sensor (Backward)

A magnet sensor for the feed overrun detection in the backward side.

When in malfunctions of this sensor such as disconnection, [E-302] will be displayed even if the feeder is not in the overrun position.

In maladjustment cases, [E-302] may also be displayed when the feeder has moved to the recess position.

Refer to “6-2-7. Adjustment of the home position sensor and the over run sensor” for the adjustment.

Connector	Pin No.	Signal name
P9	4	+24 V
	5	Feed OV +
	6	±0 V

→

Sensor check mode display	Status	Sensor LED status
OFF	Normal	ON
ON	Overrun	OFF

10. Binder sensor

A cylinder sensor for the binder up/down detection.

When in malfunctions of this sensor such as disconnection, [E-901] will be displayed at the start of the positioning.

Connector	Pin No.	Signal name
P16	1	+24 V
	2	Binder
	3	±0 V

→

Sensor check mode display	Status	Sensor LED status
ON	Binder down	ON
OFF	Binder up	OFF

11. Single/double welt sensor

A magnet sensor for the single/double welt detection. If the sensor recognizes a hole within the detection area when the binder has been placed, the cloth is identified to be single welted, and if not, it is identified to be double welted.

When in malfunctions of this sensor such as disconnection, the width of the carriage feed is always set to the width for single welt.

Connector	Pin No.	Signal name
P22	3	+24 V
	4	Single/double welt
	5	±0 V

→

Sensor check mode display	Status	Sensor LED status
ON	Double welt	ON
OFF	Single welt	OFF

12. Flap sensor (Option)

A photoelectric sensor in optical fiber system, to detect the end position of the flap. This recognizes the flap position by the reflection from folding plates, since the reflection does not reach if a flap exists and that teaches if the flap exists or not when sewing flaps.

When in malfunctions of this sensor such as disconnection or maladjustment, [E-400] to [E-405] will be displayed in flap sewing.

If the recognition signal (the short circuit between the No. 1 and No. 2 pins) does not exist, the flap sewing settings can not be set on the operation panel.

Refer to “3-5. Flap clamp” for the adjustment.

Connector	Pin No.	Signal name
P15	1	Recognition signal
	2	±0 V
	3	+24 V
	4	Left flap
	5	±0 V
	6	+24 V
	7	Right flap
	8	±0 V

↘ ↗

Sensor check mode display	Status
ON	Flap does not exist (Reflection exists)
OFF	Flap exists (Reflection does not exist)

13. Corner knife home position sensor

A magnet sensor for the original position detection of the pulse motor which controls the length of the corner knife.

When in malfunctions of this sensor such as disconnection or maladjustment, [E-800] will be displayed during the positioning of the corner knife.

Refer to “6-1-7. Home position of the corner knife” of Chapter 6 for the adjustment.

Connector	Pin No.	Signal name
P21	1	+24 V
	2	C knife original position
	3	±0 V

→

Sensor check mode display	Status	Sensor LED status
ON	Sensor dog detected	ON
OFF	Sensor dog not detected	OFF

14. Backward corner knife up sensor

A cylinder sensor to detect the ascent of the backward corner knife (movable knife).

When in malfunctions of this sensor such as disconnection or maladjustment, [E-804] will be displayed during the corner knife operations.

Refer to “6-1-6. Adjustment of the cylinder” of Chapter 6 for the adjustment.

Connector	Pin No.	Signal name
P21	4	+24 V
	5	Backward C knife upper
	6	±0 V

→

Sensor check mode display	Status	Sensor LED status
ON	Knife up	ON
OFF	Knife down	OFF

15. Backward corner knife down sensor

A cylinder sensor to detect the descent of the backward corner knife (movable knife).

When in malfunctions of this sensor such as disconnection or maladjustment, [E-805] will be displayed during the corner knife operations.

Connector	Pin No.	Signal name
P21	7	+24 V
	8	Backward C knife lower
	9	±0 V

→

Sensor check mode display	Status	Sensor LED status
ON	Knife down	ON
OFF	Knife up	OFF

16. Forward corner knife up sensor

A cylinder sensor to detect the ascent of the forward corner knife (fixed knife).

When in malfunctions of this sensor such as disconnection or maladjustment, [E-806] will be displayed during the corner knife operations.

Connector	Pin No.	Signal name
P21	10	+24 V
	11	Forward C knife upper
	12	±0 V

→

Sensor check mode display	Status	Sensor LED status
ON	Knife up	ON
OFF	Knife down	OFF

17. Forward corner knife down sensor

A cylinder sensor to detect the descent of the forward corner knife (fixed knife).

When in malfunctions of this sensor such as disconnection or maladjustment, [E-807] will be displayed during the corner knife operations.

Connector	Pin No.	Signal name
P21	13	+24 V
	14	Forward C knife lower
	15	±0 V

→

Sensor check mode display	Status	Sensor LED status
ON	Knife down	ON
OFF	Knife up	OFF

7-7.Harness related

7-7-1. Harness connection table

Refer to “7-3. Control circuit block diagram” and “7-7-2. Harness connecting pin number table” for details.

<Abbreviations for PCBs>

M PCB = Main PCB

D PCB = Power supply PCB

AVR = Switching power supply

PL PCB = Panel LCD PCB

PS PCB = Panel SW PCB

PM = Pulse motor

Harness		Connection origin	Connection end	Loose connection or breaking of wire cases
1	Power supply SW3P set	Outlet	(Power supply switch) → Breaker	The power supply of the machine can not be turned on. Nothing is displayed on the panel.
2	Power supply SW2P set			
3	Breaker NF harness	Breaker	Noise filter	
4	NF-T harness	Noise filter	Transformer	
5	T-P PCB harness B	Transformer	D PCB P1	The machine motor does not rotate. [E-211] at turning on the power
6	T-P PCB harness A	Transformer	D PCB P2	Corner knife PM does not work [E-800] Needle swing PM does not work [E-205] Stacker roller PM does not rotate Magnetic valve for air does not work Magnet sensor does not work [E-550] or [E-301] at turning on the power
7	Servo power harness	Transformer	Servo driver	LED of the servo driver does not light up [E-303] at turning on the power
8	AVR harness	Transformer	AVR CN1	The machine does not work Nothing is displayed on the panel
9	Machine motor power harness	D PCB P4	Machine motor	[E-210] during the machine operation
10	Inverter harness	D PCB P3	M PCB P30	The machine motor does not rotate [E-211] at turning on the power

Harness		Connection origin	Connection end	Loose connection or breaking of wire cases
11	Main power harness	D PCB P5	M PCB P1	Corner knife PM does not work [E-800] Needle swing PM does not work [E-205] Stacker roller PM does not rotate Magnetic valve for air does not work Magnet sensor does not work [E-301] at turning on the power
		AVR CN2		LCD or LED does not light up LCD back light does not light up
12	Bobbin winding harness	D PCB P6	Bobbin winding motor	Bobbin winding motor does not rotate
13	Corner knife power harness	M PCB P2	Corner knife PM	Corner knife PM does not work [E-800]
14	Needle rocker power harness	M PCB P3	Needle rocker PM	Needle rocker PM does not work [E-205] during the feeder positioning
15	Roller PM power harness	M PCB P5	Roller PM	Roller PM does not work
16	Servo harness	M PCB P8	Servo driver CN1A, 1B	Feeder does not move [E-303] Servo driver displays [AL. E6]
17	Motor power harness	Servo driver UVWE	Servo motor	Feeder does not move [E-303] Servo driver displays [AL. 52]
18	Encoder harness	Servo driver CN2	Servo motor	Feeder does not move [E-303] Servo driver displays [AL. 16]
19	Area sensor harness	M PCB P9	Feeding sensor	[E-301] [E-302] at turning on the power [E-300] during the feed home positioning
20	Area sensor			
21	Panel harness	M PCB P10	PL PCB P3	LCD or LED does not light up LCD back light does not light up
22	Panel SW harness	PL PCB P1	PS PCB P1	Switches on the operation panel do not work LED in the switch does not light up
23	Panel inverter harness	PL PCB P2	Inverter PCB CN1	LCD back light does not light up
24	EMSW harness	M PCB P11	Emergency stop switch	[E-502]

Harness		Connection origin	Connection end	Loose connection or breaking of wire cases
25	Machine sensor harness	M PCB P12	Machine sensor	[E-201] is displayed after a few rotation of the machine motor in feeding [E-200] [202] during rotation of the machine motor
26	Thread breakage sensor harness	M PCB P13	Thread breakage sensor PCB	[E-600 to 602] is detected by mistake in sewing Upper thread breakage detection can not be set
27	Lower thread detection sensor	M PCB P14	Lower thread detector sensor	Lower thread emptiness can not be detected Lower thread detection can not be set
28	Flap sensor	M PCB P15	Flap sensor	Flap sewing [E-400 to E-405] Flap sewing can not be set
29	Binder sensor	M PCB P16	Binder up/down cylinder sensor	[E-901] at the start of positioning
30	Needle swing home position sensor	M PCB P17	Needle swing home position sensor	[E-205] at the start of positioning or sewing Needle swing setting is disabled
31	Light marker harness	M PCB P18	Light marker	Light marker does not light up Color does not change
32	Main valve harness	M PCB P19	Magnetic valve for whole system (No. 1 to 21)	Cylinder does not work
33	Bar stacker harness	M PCB P20	Magnetic valve for stacker (No. 40 to 43)	Cylinder for the stacker does not work Stacker setting is disabled Stacker in wrong operation mode
34	Corner knife sensor harness	M PCB P21	Corner knife sensor	[E-800] in the corner knife positioning [E-804 to 807] in ascent or descent of the corner knife
35	Corner knife cylinder sensor			
36	Corner knife home position sensor			
37	Single/double welt sensor	M PCB P22	Single/double welt sensor	Clamp is fixed with the width of single welt and does not change
38	Needle bar valve harness	M PCB P23	Magnetic valve for needle change (20, 21)	Needle bar does not change even in bias sewing
39	Vacuum valve harness	M PCB P24	Magnetic valve for vacuum (50) (Option)	Cylinder for vacuum does not change Vacuum setting is disabled
40	Dart valve harness	M PCB P25	Magnetic valve for dart presser (52) (Option)	Cylinder for dart does not change Dart setting is disabled

Harness		Connection origin	Connection end	Loose connection or breaking of wire cases
41	Waist valve harness	M PCB P26	Magnetic valve for waist presser (52) (Option)	Cylinder for the waist presser does not change Waist presser setting is disabled
42	Face plate SW harness	M PCB P27	Face plate open/close switch	[E-207 to E-209]
43	Foot SW harness	M PCB P28 M PCB P29	Start switch (Foot SW right)	Start switch does not work Forward or backward switch does not work
44	3-Pedal foot SW		Forward, backward switch (Foot SW middle, left)	
45	Roller valve harness	M PCB P32	Magnetic valve for the roller up/down (53) (Option)	Cylinder for the roller up/down does not change Roller stacker setting is disabled

7-7-2. Harness connecting pin number table

Refer to “7-3. Control circuit block diagram” for details.

1. Power supply SW3P set (S52472)

Terminal side		Breaker side	Voltage (AC)
Black	Switch	Black	200 V, 220 V, 240 V, 380 V, 400 V, 415 V
White		White	
Red		-	
Green / Yellow		Green / Yellow	E (Ground)

2. Power supply SW2P set (S52968)

Terminal side		Breaker side	Voltage (AC)
Black	Switch	Black	200V, 220V, 240V, 380V, 400V, 415V
White		White	
Green / Yellow		Green / Yellow	E (Ground)

3. Breaker NF harness (S52175)

Breaker side	Noise filter	Voltage (AC)
Black	Black	200 V, 220 V, 240 V, 380 V, 400 V, 415 V
White	White	

4. NF-T harness (S52476)

Noise filter	Transformer	Voltage (AC)
1	(3)	P0V
3	(4)	200 V, 220 V, 240 V, 380 V, 400 V, 415 V

5. T-P PCB harness B (S52441)

Transformer	D PCB P1	Voltage (AC)
(5)	1	210 V
(6)	2	
	3	
E	4	E (Ground)

6. T-P PCB harness A (S52440)

Transformer	D PCB P2	Voltage (AC)
(9)	1	38 V
(10)	2	0 V
(11)	3	21 V
(12)	4	0 V
(13)	5	18 V
(14)	6	0 V

7. Servo power harness (S52442)

Transformer	Servo driver	Voltage (AC)
(5)	L1, L11	210 V
(6)	L2, L21	0 V

8. AVR harness (S52439)

Transformer	AVR CN1	Voltage (AC)
	1	
	2	
(7)	3	100 V
	4	
(8)	5	0 V

9. Machine motor power harness (S52446)

D PCB P4	Machine motor	Signal
1	1	U
2	2	V
3	3	W
E	4	E

10. Inverter harness (S52444)

D PCB P3	M PCB P30	Signal / Voltage (DC)
1	1	P8V
2	2	S0V
3	3	N8V
4	4	VS
5	5	RYout
6	6	KAISEI
7	7	+5 V
8	8	IPMoff
9	9	UP
10	10	VP
11	11	WP
12	12	UN
13	13	VN
14	14	WN
15	15	IPMFo

11. Main power harness (S52443)

D PCB P5	AVR CN2	M PCB P1	Signal / Voltage (DC)
4		12	+5 V
6		11	±0 V
1		5	+12 V
2		4	±0 V
3		3	-12 V
	1	1	+55 V
	7	2	+55 V
	2	9	±0 V
	8	10	±0 V
	3	8	+30 V
	9	16	+30 V
	4	7	±0 V
	10	15	±0 V
	5	6	+24 V
	11	14	+24 V
	16	13	±0 V

12. Bobbin winding harness (S52459)

D PCB P6	Bobbin winding motor	Signal
1	1	+24 V
2	2	±0 V

13. Corner knife power harness (S52453)

M PCB P2	Corner knife PM	Signal
1	1	A
2	2	B
3	3	C
4	4	D
5	5	E
	6	

14. Needle rocker power harness (S52466)

M PCB P3	Needle rocker PM	Signal
1	1	A
2	2	B
3	3	C
4	4	D
5	5	E
	6	

15. Roller PM power harness (S52466)

M PCB P5	Roller PM	Signal
1	1	PMOUT1
2	2	PMOUT2
3	3	PMOUT3
4	4	PMOUT4
5	5	PMCOM1
6	6	PMCOM2

16. Servo harness (S52445)

M PCB P8	Servo driver		Signal / Voltage
	CN1A	CN1B	
A2	8		CR-
B3	18		INP-
A4	13		PG
B4	3		PP
A5	12		NG
B5	2		NP
A6	7		LB
B6	17		LBR
A7	6		LA
B7	16		LAR
	Plate		Shielded
A1		1	LG
B1		15	EMG
B2		5	SON-
A3		18	ALM
A8		10	SG
B8		20	SG
	Wire connection	3	
		13	
		Plate	Shielded

17. Motor power harness (S52448)

Servo driver	Servo motor	Signal
U	1	U
V	2	V
W	3	W
E	4	E

18. Encoder harness (S52447)

Servo driver CN2	Servo motor	Signal
19, 20	7	P5
11, 12	8	LG
7	1	MR
17	2	MRR
6	4	MD
16	5	MDR
9	3	BT
1	8	LG
Plate	9	Shielded

19. Area sensor harness (S52451)

20. Area sensor (S52452)

Area sensor harness		Area sensor		Signal / Voltage
M PCB P	Relay	Relay	Sensor	
1	1	1	ORG (Brown)	+24 V
2	2	2	ORG (Black)	ORG
3	3	3	ORG (Blue)	±0 V
4	4	4	OVR+ (Brown)	+24 V
5	5	5	OVR+ (Black)	OVR+
6	9	9	OVR+ (Blue)	±0 V
7	6	6	OVR- (Brown)	+24 V
8	7	7	OVR- (Black)	OVR-
9	8	8	OVR- (Blue)	±0 V

21. Panel harness (S52458)

M PCB P10	PL PCB P3	Signal / Voltage (DC)
1	1	±0 V
2	2	±0 V
3	3	±0 V
4	4	±0 V
5	5	RXD
6	6	DSR
7	7	TXD
8	8	DTR
9	9	EMLED
10	10	+12 V
11	11	+12 V
12	12	+12 V
13	13	-12 V
14	14	+5 V
15	15	+5 V
16	16	+5 V

22. Panel SW harness (S52477)

PL PCB P1	PS PCB P1	Signal / Voltage (DC)
1	1	+5 V
2	2	EMLED
3	3	COM0
4	4	COM1
5	5	COM2
6		
7	7	SW0
8	8	SW1
9	9	SW2
10	10	SW3
11	11	SW4
12	12	SW5
13	13	LED0
14	14	LED1
15		

23. Panel inverter harness (S40455)

PL PCB P2	Inverter PCB CN1	Voltage (DC)
1	1	±0 V
2	2	+12 V

24. EMSW harness (S52461)

M PCB P11	EMSW	Signal
1	1	N. C
2	2, 4	COM
3	3	N. O

25. Machine sensor harness (S52449)

M PCB P12	Needle up	Synchronous	Signal / Voltage (DC)
1	3		+5 V
2	1		NUP
3	2		K
4		3	+5 V
5		1	SYNC
6		2	K

26. Thread breakage sensor harness (S52462)

M PCB P13		Thread breakage sensor PCB	Signal / Voltage (DC)
1	Wire connection		Recognition
2			±0 V
3		1	+5 V
4		2	Thread breakage left
5			
6		3	Thread breakage right
7		4	±0 V

27. Lower thread detection sensor (S52469)

M PCB P14		Sensor PCB	Signal / Voltage (DC)
1	Wire connection		Recognition
2			±0 V
3		BL (Brown)	+24 V
4		BL (Black)	Lower thread detection left
5		BL (Blue)	±0 V
6		BR (Brown)	+24 V
7		BR (Black)	Lower thread detection right
8		BR (Blue)	±0 V

28. Flap sensor (S52454)

M PCB P15		Sensor	Signal / Voltage (DC)
1	Wire connection		Recognition
2			±0 V
3		FL (Brown)	+24 V
4		FL (Black)	Flap detection left
5		FL (Blue)	±0 V
6		FR (Brown)	+24 V
7		FR (Black)	Flap detection right
8		FR (Blue)	±0 V

29. Binder sensor (S52461)

M PCB P16	Sensor	Signal
1	Binder (Brown)	+24 V
2	Binder (Black)	Binder up/down detection
3	Binder (Blue)	±0 V

30. Needle rocker home position sensor (S52467)

M PCB P17		Sensor	Signal / Voltage (DC)
1	Wire connection		Recognition
2			±0 V
3		(Brown)	+24 V
4		(Black)	Needle rocker home position detection
5		(Blue)	±0 V

31. Light marker harness (S52463)

M PCB P18	Relay		Signal / Voltage (DC)
1	Marker 1 (Sewing end point)	1	Red marker
2		2	Green marker
3		3	+5 V
4	Marker 2 (Center point)	1	Red marker
5		2	Green marker
6		3	+5 V
7	Marker 3 (Sewing startup point)	1	Red marker
8		2	Green marker
9		3	+5 V
10	Marker 4 (Reserved)	1	Red marker
11		3	+5 V
12	Marker 5 (Reserved)	1	Red marker
13		3	+5 V

32. Main valve harness (S52450)

M PCB P19	SMC		Signal / Voltage (DC)
B7	1	A	Lower thread detection blow
A8		C	+24 V
A7	2	A	Lower thread trimming
A8		C	+24 V
B6	3	A	Upper thread trimming
A8		C	+24 V
A6	4	A	Upper thread releasing
A8		C	+24 V
B5	5	A	Timing plate
B3		C	+24 V
A5	6	A	Center knife
B3		C	+24 V
B4	7	A	Thread supply
B3		C	+24 V
A4	8	A	Binder upper
B3		C	+24 V
B2	9	A	Binder lower
A3		C	+24 V
A2	10	A	(Reserved)
A3		C	+24 V

M PCB P19	SMC		Signal / Voltage (DC)
B1	11	A	Corner knife backward
A3		C	+24 V
A1	12	A	Corner knife forward
A3		C	+24 V
A9	13	A	(Welting cloth blow)
A13		C	+24 V
B9	14	A	Flap right
A13		C	+24 V
A10	15	A	Folding plate right
A13		C	+24 V
B10	16	A	Folding plate left
B13		C	+24 V
A11	17	A	Flap left
B13		C	+24 V
B11	18A	A	Single/double welt switching A
B13		C	+24 V
A12	18B	A	Single/double welt switching B
A15		C	+24 V
B12	19	A	Carriage feed left
B15		C	+24 V
A14	20	A	Carriage feed pressure apply
B15		C	+24 V
B14	21	A	Carriage feed right
B15		C	+24 V

33. Bar stacker harness valve (S52471)

M PCB P20		SMC		Signal / Voltage (DC)
B1		40	A	Middle clamp
A1			C	+24 V
A2		41	A	Sweep
A1			C	+24 V
B2		42	A	Outer clamp
A1			C	+24 V
A3		43	A	Table
A1			C	+24 V
A4	Wire connection			Recognition
B4				±0 V

34. Corner knife sensor harness (S52724)

35. Corner knife home position sensor (S52723)

36. Corner knife cylinder sensor (S52722)

Sensor harness		Sensor		Signal / Voltage
M PCB P21	Relay	Relay	Sensor	
1	1	1	ORG (Brown)	+24 V
2	6	6	ORG (Black)	Home position detection
3	11	11	ORG (Blue)	±0 V
4	2	2	LU (Brown)	+24 V
5	7	7	LU (Black)	Cylinder backward upper detection
6	12	12	LU (Blue)	±0 V
7	3	3	LD (Brown)	+24 V
8	8	8	LD (Black)	Cylinder backward lower detection
9	13	13	LD (Blue)	±0 V
10	4	4	RU (Brown)	+24 V
11	9	9	RU (Black)	Cylinder forward upper detection
12	14	14	RU (Blue)	±0 V
13	5	5	RD (Brown)	+24 V
14	10	10	RD (Black)	Cylinder forward lower detection
15	15	15	RD (Blue)	±0 V

37. Single/double welt sensor (S52455)

M PCB P22	Sensor	Signal
1		
2		
3	WELT (Brown)	+24 V
4	WELT (Black)	Single/double welt detection
5	WELT (Blue)	±0 V

38. Needle bar valve harness (S52470)

M PCB P23		SMC		Signal / Voltage (DC)
1		30	A	Needle change 1
2			C	+24 V
1		31	A	Needle change 2
4			C	+24 V
5	Wire connection			Recognition
6				±0 V

39. Vacuum valve harness (S52983)

M PCB P24		SMC		Signal / Voltage (DC)
1	Wire connection			Recognition
2				±0 V
3		50	C	+24 V
4			A	Vacuum

40. Dart valve harness (S52981)

M PCB P25		SMC		Signal / Voltage (DC)
1	Wire connection			Recognition
2				±0 V
3		51	C	+24 V
4			A	Dart presser

41. Waist valve harness (S52982)

M PCB P26		SMC		Signal / Voltage (DC)
1	Wire connection			Recognition
2				±0 V
3		52	C	+24 V
4			A	Waist presser

42. Face plate SW harness (S52468)

D PCB P27	Face plate SW	Signal voltage (DC)
1	1	SW
2	2	±0 V

43. Foot SW harness (S52457)

44. 3-Pedal foot SW (S52960)

M PCB P28	M PCB P29	Relay	Relay	Foot switch		Signal / Voltage
1		1	1	Right SW	N. O	Start SW
2		2	2		COM	±0 V
		3	3	Chassis		E (Ground)
	1	4	4	Left SW	N. O	Backward SW
	2	5	5		COM	±0 V
	3	6	6	Middle SW	N. O	Forward SW
	4	7	7		COM	±0 V
	5	8	8			
	6	9	9			
	7	10	10			
	8	11	11			
	9	12	12			
	10	13	13			
	11	14	14			
	12	15	15			

45. Roller valve harness (S52984)

M PCB P32		SMC		Signal / Voltage (DC)
1	Wire connection			Recognition
2				±0 V
3				
4				
5				
6				
7				
6		53	C	+24 V
8			A	Roller up/down

7-8. Servo motor related

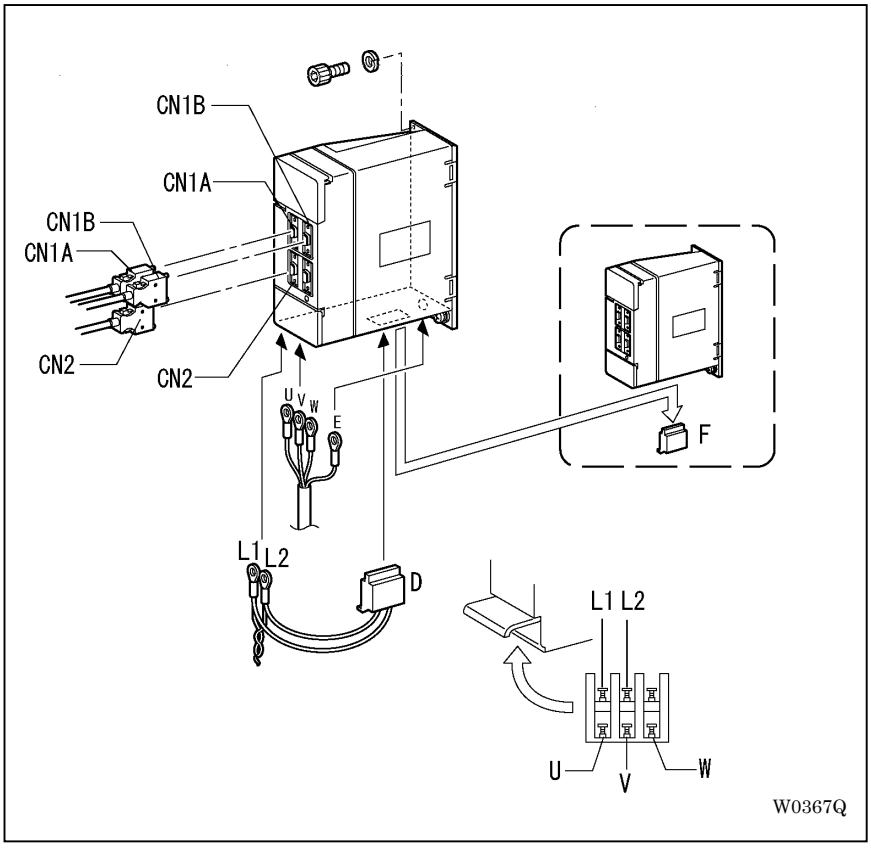
7-8-1. Replacement of the servo motor

Refer to “6-2. Feeding device”.

7-8-2. Replacement of the servo driver

[Note] Wait at least 5 minutes after turning off the power switch and disconnecting the power cord from the wall outlet before the replacement of the servo driver.

Servo amplifiers do not work unless their parameters are set. Confirm that the parameters are set on the servo amplifier before its replacement. The servo amplifier with parameters set has a seal attached on the lower part of its side panel. And it also displays [620 A] on the driver’s LED for 2 seconds when turning on the power switch.



1. Detach the servo harness (CN1A, CN1B) and the encoder harness (CN2) connected to the driver.
2. Open the cover on the lower part of the driver, and detach motor power harnesses (U, V, W, E).
3. Detach servo power harnesses (L1, L2).
4. Detach the green connector D.

* Do not detach lines of L11 and L21.

5. Replace the servo driver.
6. Detach the green connector F from the new servo amplifier.
7. Reattach all harnesses as they were. Be sure to put terminals or connectors to the right positions.

* Take notice that connectors CN1A or CN1B (servo harness) and CN2 (encoder harness) have the same shapes each other.

7-8-3. Error code list of the servo driver

Error codes [AL. **] will be displayed on the driver's LED when the feeding motor error [E-303] occurs. The meanings of those error codes and check items are the followings:

<Error code list of the servo driver>

Error code	Description	Check item & corrective action
AL. 10	Insufficient voltage	1. Low power voltage (the voltage between L1 and L2 is 160 V or less) 2. Short break of the power occurred 3. The power was restored immediately after its turning off
AL. 12	Memory is abnormal 1	1. Errors still occur after detachment of CN1A, 1B and 2 → Replace the driver
AL. 13	Clock is abnormal	
AL. 15	Memory is abnormal 2	
AL. 16	Encoder is abnormal 1	1. Connector CN2 is dropped out 2. Encoder harness is not working 3. Malfunction of the encoder → Replace the motor
AL. 17	PCB is abnormal 2	1. Errors still occur after detachment of CN1A, 1B and 2 → Replace the driver
AL. 19	Memory is abnormal 3	
AL. 20	Encoder is abnormal 2	1. Connector of the encoder harness on motor side is dropped out 2. Encoder harness is not working
AL. 24	Earth fault of motor power line	1. Power supply line (L1 or L2) and motor power line (U, V or W) contacted 2. Power supply line (L1 or L2) or motor power line (U, V or W) is degraded → Replace the power supply line (L1 or L2) or motor power line
AL. 25	Absolute position lost	1. Voltage drop of capacitor in the encoder → Replace the motor
AL. 30	Regeneration is abnormal	1. Beyond the regenerative power limit → Turn off the machine power and leave it for about 5 minutes 2. Excess power voltage (the voltage between L1 and L2 is 260 V or more) 3. Malfunction of regenerative register or regenerative transistor → Replace the driver
AL. 31	Overspeed	1. Malfunction of the encoder → Replace the driver 2. Abnormal parameters of the driver → Replace the driver
AL. 32	Overcurrent	1. Contact or earth fault of motor power line (U, V or W) 2. Errors still occur after detachment of CN1A, 1B and 2 → Replace the driver 3. Wrong detection of overcurrent by noise

Error code	Description	Check item & corrective action
AL. 33	Excess power voltage	1. Excess power voltage (The voltage between L1 and L2 is 260 V or more) 2. Malfunction of built-in regenerative register → Replace the driver
AL. 35	Command pulse is abnormal	1. Servo harness is not working 2. Servo harness includes noise 3. Malfunction of the main PCB
AL. 37	Parameter is abnormal	1. [620 A] is not displayed when turning on the power → Replace the driver
AL. 45	Main circuit elements are overheated	1. Replace the driver
AL. 46	Motor is overheated	1. Ambient temperature around the motor is over 40 degrees Celsius 2. Abnormal setting of the motor 3. Malfunction of thermal protector of the motor → Replace the driver
AL. 50	Overload	1. Feeder hit an obstacle 2. Wrong connection of motor power line (U, V or W) 3. Malfunction of the encoder → Replace the driver
AL. 51		
AL. 52	Margin of error is too high	1. Wrong connection or disconnection of motor power harness 2. Insufficient torque caused by insufficient power supply 3. Feeder hit an obstacle 4. Malfunction of the encoder → Replace the driver
8. 8. 8. 8	Watch dog	1. Replace the driver
AL. E6	Emergency stop	1. Bad connection or disconnection of servo harness

7-9. Sensor check mode

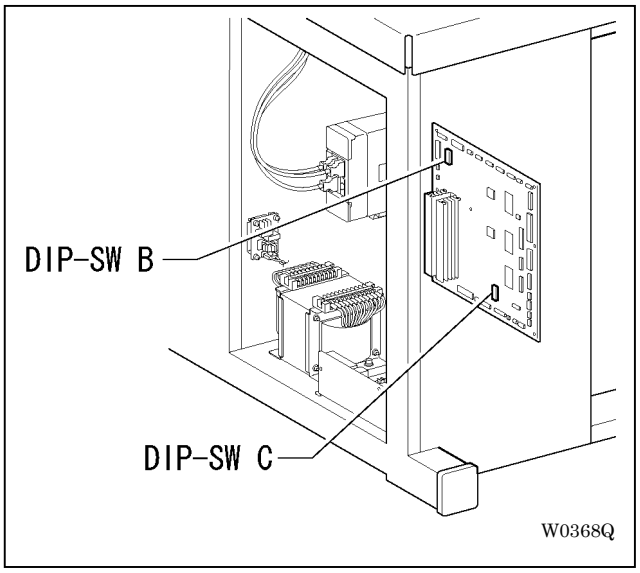
* Checks and displays each status of sensors or switches when an error occurs. This enables to judge the origin of troubles to be abnormal motions of the machine or to be malfunction of sensors or switches.
* Refer to “Chapter 8 System configuration” (“Chapter 7 Environmental setup” in BAS-6150 model) of the manual for details.
* In some errors, it may be impossible to reach the sensor check mode. In such cases, turn on the dip switch (DIPSW) B-6 with the power supply turned off, then turn on the power supply. This enables to jump into the sensor check mode directly.

Display	Description	Status
DSW-A	DIPSW A	Not implemented
DSW-B	DIPSW B	From the left, 12345678 0: OFF 1: ON
DSW-C	DIPSW C	From the left, 12345678 0: OFF 1: ON
FOOT SW	Foot switch	From the left, Backward, Forward and Start SW 0: OFF 1: ON
FACE SW	Face plate switch	OFF: Open ON: Close
EMCY SW	Emergency stop switch	OFF: Switch OFF ON: Switch ON
EMCY NC	Emergency stop switch NORMAL CLOSE	OFF:
EMCY NO	Emergency stop switch NORMAL OPEN	OFF:
NLUP	Needle up signal	ON: Needle up OFF: Other than needle up
SYNC	Synchronizing signal	ON/OFF: Synchronizing signal 24 slits per revolution Value: 0 to 24 Count number of the slit. 24 counts per forward rotation of the pulley. Clears to 0 with a needle up signal
NSWG ORG	Needle swing original position sensor	ON: Sensor ON OFF: Sensor OFF
FEED OVR+	Feed overrun sensor (Backward)	ON : Sensor ON = Overrun OFF: Sensor OFF = Normal
FEED ORG	Feed original position sensor	ON : Sensor ON OFF: Sensor OFF
FEED OVR-	Feed overrun sensor (Forward)	ON : Sensor ON = Overrun OFF : Sensor OFF = Normal
210V	Voltage 210 V	210 V system power supply voltage
55V	Voltage 55 V	55 V system power supply voltage
30V	Voltage 30 V	30 V system power supply voltage
24V	Voltage 24 V	24 V system power supply voltage
THBRK	Upper thread breakage sensor	Left/Right ON: Light shielded OFF: Light transmitted

Display	Description	Status
BBTHR	Lower thread detector sensor	Left/Right ON : Reflection from bobbin exists = Lower thread empty OFF: No reflection= Lower thread remaining
FLAP	Flap sensor	Left/Right ON : Reflection from folding plate exists = Flap exists OFF: No reflection= Flap does not exist
WELT	Single/double welt sensor	ON: Sensor ON = Double welt OFF: Sensor OFF = Single welt
BINDER	Binder	ON: Sensor ON = Binder down OFF: Sensor OFF = Binder up
STKR1, 2	Not in use	
ROLLER	Not in use	
CORM ORG	Corner knife home position sensor	ON: Sensor ON OFF: Sensor OFF
CORM LU	Corner knife cylinder backward upper sensor	ON: Corner knife up OFF: Corner knife down
CORM LD	Corner knife cylinder backward lower sensor	ON: Corner knife down OFF: Corner knife up
CORM RU	Corner knife cylinder forward upper sensor	ON: Corner knife up OFF: Corner knife down
CORM RD	Corner knife cylinder forward lower sensor	ON: Corner knife down OFF: Corner knife up
NSW ERR	Needle swing PM overcurrent signal	ON: Error OFF: Normal
SERVO ERR	Carriage feed servo error	ON: Servo error OFF: Normal

7-10. Dipswitch

[Note] • Be sure to turn off the power supply before changes of dipswitches.
• Changes of dipswitches during the power is on will not be effective until the next switch-on of the power supply.
• There are 2 dipswitches on the main PCB (B and C).



DIP-SW B

No.	Description	OFF	ON	Initial value
1	Clamp type setting	Standard (220 mm)	Long (250 mm)	OFF
2	Knife and holder of the Corner knife	Adjustable (Standard edition)	Fixed (Popular edition)	OFF
3	Presence of lower feeding device	Not equipped	Equipped	OFF
4	Not in use			OFF
5	Not in use			OFF
6	Sensor check	Deactivated	Activated	OFF
7	Feeding sensor adjustment	Deactivated	Activated	OFF
8	Corner knife sensor adjustment	Deactivated	Activated	OFF

When the above 7 and 8 are both ON, adjustments will be done in the following order:
Memory initialization → Feeding sensor adjustment → Corner knife sensor adjustment.

DIP-SW C

No.	Description	OFF	ON	Initial value
1	Not in use			OFF
2	Not in use			OFF
3	Not in use			OFF
4	Not in use			OFF
5	Error handling	Activated	Deactivated	OFF
6	Sets correction quantity of the needle upper stop position	6 7 8 Initial value		OFF
7		OFF OFF OFF Initial value		OFF
8		ON OFF OFF Delay by 1 slit		OFF
		OFF ON OFF Delay by 2 slits		
		ON ON OFF Delay by 3 slits		
		OFF OFF ON Same with the initial value		
		ON OFF ON Gain by 1 slit		
		OFF ON ON Gain by 2 slits		
		ON ON ON Gain by 3 slits		

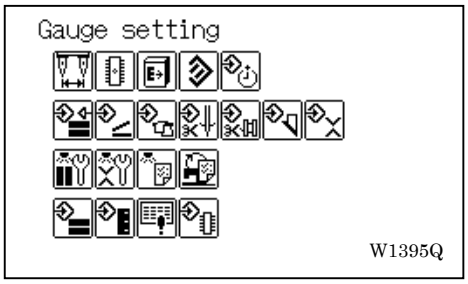
7-11. Memory switch

* Memory switches can be set separately from dipswitches.
* Memory switches are available in PROMs with version “MN-B” or later.

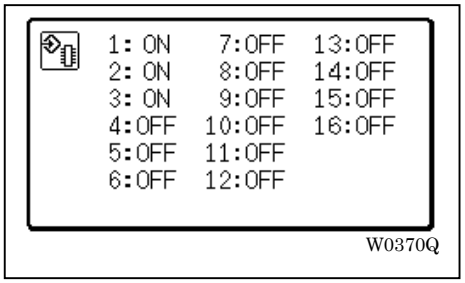
7-11-1. How to set memory switch

1. Press down both “ESC” key and “ENTER” key (no need to press any key in BAS-6150 model), and turn on the power supply.
2. Press the start switch to perform the home position detection.
3. Hold “ENTER” key down and press “PROGRAM” (“SELECT” in BAS-6150 model) key.

* The system configuration screen (Environmental setup screen in BAS-6150 model) will be displayed.
* For BAS-6150 model, operate in the same way with ordinary environmental setup. (Refer to “Chapter 7 Environmental setup” of the manual.)



4. Select the memory switch icon ( ) and press “ENTER” key.
5. Move the cursor to the required item using left/right arrow keys, and change the setting using up/down arrow keys.



6. After all settings are completed, press “ENTER” key.

7-11-2. Memory switch list

No.	Description	OFF	ON	Initial value
1 (61)	Center knife moves up and down once in the first home position detection after the power on. (Preventing deviation of the center knife) Be careful not to be hurt.	Deactivated	Activated	OFF
2 (62)	Timing to display “Face plate open error”	Displays when the face plate opens	Displays when the feed starts to move with the face plate open	OFF
3 (63)	Operation to move from the recess position to the standby position (Preventing wrong operations)	Press “FEED” key	Hold “FEED” key down and press “ENTER” key	OFF
4 (64)	Mode of the carriage feed movement with stacker operating (Preventing tucking down of cloths)	Starts to move when the cloth is held	Starts to move after releasing the cloth	OFF
5 (65)	Binder up at the home position detection (Preventing interference of the feed with 8 mm gauges)	Deactivated	Activated	OFF
6 (66)	Automatic feed home positioning at the cloth position in every 50 sewing works (PROM Version C or later)	Deactivated	Activated	OFF
7	Not in use			OFF
8	Not in use			OFF
9	Not in use			OFF
10	Not in use			OFF
11	Not in use			OFF
12	Not in use			OFF
13	Not in use			OFF
14	Not in use			OFF
15	Not in use			OFF
16	Not in use			OFF

In the No. column, numbers in ( ) indicate environmental parameter numbers in BAS-6150 model. For example, (61) means No. 61 memory switch 1 and displayed as [SW1].

7-12. Error code

* With malfunctions of harness, check the wiring or falling off of pins referring to “7-7-2. Harness connecting pin number table”.
* With malfunctions of needle swing PM or Corner knife PM, the normal resistance between each adjacent 2 lines (Black-Red / Red-Orange / Orange-Yellow / Yellow-Blue / Blue-Black) of the 5 lines is 1.5 Ω. If there is any line with 0 Ω , there must be a malfunction of the motor.
* For how to check in the sensor check mode, refer to “Chapter 8 System configuration” (“Chapter 7 Environmental setup” in BAS-6150 model) of the manual.

Error code	Description	Corrective action, cause and check item	Ref.	Sensor check mode
E-100	Start SW has been pressed down when turning on power supply	• Release start SW and press reset SW • Malfunction of start SW • Malfunction of foot switch harness	-	Screen 1 FOOT SW
E-101	Forward SW has been pressed down when turning on power supply	• Release forward SW and press reset SW • Malfunction of forward SW • Malfunction of foot switch harness	-	Screen 1 FOOT SW
E-102	Backward SW has been pressed down when turning on power supply	• Release backward SW and press reset SW • Malfunction of backward SW • Malfunction of foot switch harness	-	Screen 1 FOOT SW
E-103	Emergency stop SW has been pressed down when turning on power supply	• Release emergency stop SW and press reset SW • Malfunction of emergency stop SW • Malfunction of EMSW harness		Screen 1 EMCY SW/NC/NO
E-200	Needle upper stop error of the machine	• Adjust synchronizing and needle up sensor so that needle stops in about the middle every time • Malfunction of needle up sensor • Malfunction of synchronizing sensor • Malfunction of the machine sensor harness • Wrong settings on DSWC-6 to 8 • Upper shaft of the machine is too heavy • Malfunction of the machine motor		Screen 1 NLUP SYNC

Error code	Description	Corrective action, cause and check item	Ref.	Sensor check mode
E-201	The machine is not positioned at needle up position (Warning)	• Rotate the pulley to move to needle up position • Malfunction of needle up sensor		Screen 1 NLUP
E-202	Abnormality of synchronizing sensor or the machine motor	<If the motor rotates> • Malfunction of synchronizing sensor • Malfunction of the machine sensor harness <If the motor does not rotate> • Upper shaft of the machine is too heavy • Malfunction of the machine motor		Screen 1 SYNC
E-203	Normal rotation error of the machine at needle bar change (Only in BAS-6220 model)	Same as E-202		Screen 1 SYNC
E-204	Reverse rotation error of the machine at needle bar change (Only in BAS-6220 model)	Same as E-202		Screen 1 SYNC
E-205	Needle rocker home detecting error	<If the motor rotates> • Malfunction of needle rocker home position sensor • The phase of feed home position dog is lagged by 180 degrees <If the motor does not rotate> • Malfunction of needle rocker home position sensor harness • Malfunction of rocker home power harness • Malfunction of rocker home power harness • Heavy feeling in trying to rotate upper shaft of the machine		Screen 1 NSWGORG
E-206	Overcurrent error of needle rocker motor	• Malfunction of needle rocker power harness • Malfunction of needle rocker power harness • Malfunction of main PCB		Screen 1 NSWGERR
E-207	Face plate opened when the machine was not in operation	• Close face plate <Errors still occur after closing face plate> • Malfunction of face plate SW		Screen 1 FACE SW
E-208	Face plate opened in sewing	Same as E-207		Screen 1 FACE SW

Error code	Description	Corrective action, cause and check item	Ref.	Sensor check mode
E-209	Face plate opened when feeder is moving	Same as E-208		Screen 1 FACE SW
E-210	Machine motor error	• Upgrade PROM to version MT-C or later • Upper shaft of the machine is too heavy • Malfunction of the machine motor		-
E-211	Abnormal power supply voltage (300 V) of the machine motor	• Primary side voltage is too high, or too low • Malfunction of T-P PCB harness B, or no wire connection • Malfunction of power supply PCB		Screen 1 210V
E-212	IPM of power supply PCB is abnormal	• Malfunction of inverter harness • Malfunction of power supply PCB		-
E-213	Relay on power supply PCB is abnormal	• Malfunction of inverter harness • Malfunction of power supply PCB (sound with relay ON can not be heard when turning on the power)		
E-220	Synchronizing sensor is abnormal	• Malfunction of synchronizing sensor • Malfunction of machine sensor harness		Screen 1 SYNC
E-300	Feeder home position detecting error	• Malfunction of area sensor • Malfunction of area sensor harness • Malfunction of gear in carriage feed servo motor		Screen 1 FEED ORG
E-301	Feed forward overrun error	• Feed is in forward overrun position • Malfunction of area sensor • Malfunction of area sensor harness • Fuse F6 is blown • Malfunction of T-P PCB harness A • Main power harness • Turn ON the memory switch No.6 (Turn ON the enviroronmental parameter No.66 in BAS-6150 model)		Screen 1 FEED OVR-
E-302	Feed backward overrun error	• Feed is in backward overrun position • Malfunction of area sensor • Malfunction of area sensor harness		Screen 1 FEEDOVR+
E-303	Feed motor is abnormal	• Refer to the error displayed on driver	8-3	

Error code	Description	Corrective action, cause and check item	Ref.	Sensor check mode
E-400	Wrong detection of right flap front edge (Recognized the flap position to be forward than the sewing start position)	• Flap is put forward than the sewing start position • Maladjustment of flap sensor amplifier (Too high threshold value) • Maladjustment of flap sensor lens • Dirt or damage on reflection tape of folding plate • Malfunction of flap sensor		Screen 1 FLAP
E-401	Wrong detection of left flap front edge (Ditto)	Ditto		Ditto
E-402	Wrong detection of right flap front edge (Failed to recognize the front edge of flap within the sewing boundary)	• Sewing started without flap setting • Maladjustment of flap sensor amplifier (Too low threshold value)		Screen 1 FLAP
E-403	Wrong detection of left flap front edge (Ditto)	Ditto		Ditto
E-404	Wrong detection of right flap back edge (Failed to recognize the back edge of flap within the sewing boundary)	• Flap is put backward than the sewing end position • Dirt or damage on reflection tape of folding plate		Screen 1 FLAP
E-405	Wrong detection of left flap back edge (Ditto)	Ditto		Ditto
E-500	Emergency stop switch was pressed	• Release emergency stop SW and press reset SW		Screen 1 EMCY SW
E-501	Emergency stop switch was pressed during sewing	Ditto		
E-502	Emergency stop switch is not connected	• Defective connection with emergency stop SW • Malfunction of EMSW harness • Bad electrical contact of emergency stop SW		Screen 1 EMCY NC/NO
E-503	Emergency stop switch was pressed while feeding	• Release emergency stop SW and press reset SW		
E-550	Abnormal voltage in 24 V system	• Fuse F6 is blown • Primary side voltage is too low, or too high		Screen 1 24V
E-551	Abnormal voltage in 30 V system	• Fuse F5 is blown • Primary side voltage is too low, or too high		Screen 1 30V

Error code	Description	Corrective action, cause and check item	Ref.	Sensor check mode
E-552	Abnormal voltage in 55 V system	• Fuse F4 is blown • Primary side voltage is too low, or too high		Screen 1 55V
E-553	Abnormal rise in primary side voltage	• Primary side voltage is too high		Screen 1 Full voltage
E-554	Abnormal drop in primary side voltage	• Primary side voltage is too low • More than one fuses are blown		Screen 1 Full voltage
E-600	Upper thread breakage in both right and left	<Normal detection> • Upper thread breakage • No lower thread is coming up (Lower thread is running idle) <Wrong detection> • Maladjustment of upper thread breakage sensor • Wrong threading • Malfunction of upper thread breakage sensor • Malfunction of thread breakage sensor harness • Insufficient needle number setting for upper thread breakage detection		Screen 2 THBRK
E-601	Thread breakage in right upper thread	Ditto		Ditto
E-602	Thread breakage in left upper thread	Ditto		Ditto
E-610	Bobbin thread is running out in both right and left bobbins	<Normal detection> • Lower thread is empty <Wrong detection> • Maladjustment of lower thread detection sensor amplifier (Too low threshold value) • Maladjustment of lower thread detection sensor lens		Screen 2 BBTHR
E-611	Right bobbin thread is running out	Ditto		Ditto
E-612	Left bobbin thread is running out	Ditto		Ditto
E-620	Bobbin counter has reached to the limit	• Press reset SW	-	
E-700	Main PROM is not mounted	• Mount PROM • PROM is set in wrong direction • Malfunction of panel harness	-	-

Error code	Description	Corrective action, cause and check item	Ref.	Sensor check mode
E-701	Sewing PROM is not mounted	• Mount PROM • PROM is set in wrong direction	-	-
E-702	Motor PROM is not mounted	Ditto	-	-
E-703	CPLD of main PCB is abnormal	• Replace main PCB	-	-
E-710	Memory access error	• Replace main PCB	-	-
E-711	Program data corrupted	• Press reset SW, then input program data again • Replace main PCB	-	-
E-712	Cycle program data is corrupted	Ditto	-	-
E-713	General parameter data is corrupted	Ditto	-	-
E-714	Counter data is corrupted	Ditto	-	-
E-730	Too short seam length	• Press reset SW, then input allowable number for sewing	-	-
E-731	Too long seam length	Ditto	-	-
E-732	Sewing data error	• Press reset SW, then reconfigure allowable data for sewing	-	-
E-733	Flap sewing data error	Ditto		
E-800	Corner knife home position detection error	<If the motor rotates> • Maladjustment of corner knife home position sensor • Malfunction of corner knife home position sensor <If the motor does not rotate> • Malfunction of corner knife sensor harness • Malfunction of corner knife power harness • Malfunction of pulse motor		Screen 2 CORM ORG
E-801	Overcurrent error of corner knife motor	• Malfunction of corner knife power harness • Malfunction of pulse motor • Malfunction of main PCB		-

Error code	Description	Corrective action, cause and check item	Ref.	Sensor check mode
E-802	Corner knife movement error	• Pulse motor can not move to the corner knife position indicated by program	-	-
E-803	Corner knife remains raised	• Knife is caught by something mechanically • Maladjustment of cylinder sensor • Upper and lower air piping are in reverse connection each other		Screen 2 CORM LU CORM RU
E-804	Backward corner knife rising operation error	• Insufficient cut by center knife (Corner knife does not reach the top limit) • Maladjustment of cylinder sensor • Malfunction of valve harness (No. 11)		Screen 2 CORM LU
E-805	Backward corner knife lowering operation error	• Maladjustment of cylinder sensor		Screen 2 CORM LD
E-806	Forward corner knife rising operation error	• Insufficient cut by center knife (Corner knife does not reach the top limit) • Maladjustment of cylinder sensor • Malfunction of valve harness (No. 12)		Screen 2 CORM RU
E-807	Forward corner knife lowering operation error	• Maladjustment of cylinder sensor		Screen 2 CORM RD
E-900	Binder is lowered	• Air is empty • Maladjustment of cylinder sensor • Malfunction of valve harnesses (No. 8 and 9) • Air piping are in reverse connection each other (No. 8 and 9)		Screen 2 BINDER
E-901	Binder lowering error	• Maladjustment of cylinder sensor • Malfunction of valve harnesses (No. 8 and 9) • Air piping are in reverse connection each other (No. 8 and 9)		Screen 2 BINDER
E-902	Binder rising error	• Maladjustment of cylinder sensor • Malfunction of valve harnesses (No. 8 and 9) • Air piping are in reverse connection each other (No. 8 and 9)		Screen 2 BINDER

8. Troubleshooting

8-1. Troubles and measures

Trouble	Check point	Measures
Upper thread breakage	(1) Is the needle bent, or the needle tip obtuse ?	(1) Change the needle.
	(2) Is the needle attached correctly ?	(2) Attach the needle in the right direction.
	(3) Is the threading of the upper thread correct ?	(3) Refer to “How to thread an upper thread”.
	(4) Is the tension of the upper thread too high ?	(4) Refer to “Sewing tension”.
	(5) Is the tension of the thread take up spring too low ?	(5) Refer to “Thread take up spring tension”.
	(6) Is the clearance between the rotary hook and the bobbin case opener proper ?	(6) Refer to “Timing adjustment of a needle and the rotary hook”.
	(7) Are there any flashes on the lower thread tension adjustment screw of the bobbin case ?	(7) Remove the flash with files.
	(8) Is the height of the needle bar proper ?	(8) Refer to “Timing adjustment of a needle and the rotary hook”.
	(9) Is the timing set properly (too low) ?	(9) Increase the timing. (Refer to “Timing adjustment”)
	(10) Is the thread too weak ?	(10) Change the thread. Decrease the stitching speed.
	(11) Is the needle located in the center of the needle groove ?	(11) Refer to “Binder adjustment”.
	(12) Are there any flaws on the needle groove of the binder ?	(12) Buff it.
	(13) Are there any flaws on the cloth guide ?	(13) Buff it.
	(14) Are there any flaws on the needle hole of the needle plate or on the rotary hook stopper ?	(14) Buff it.
	(15) Are there any flaws on the thread guide ?	(15) Buff it.
	(16) Does the thread come out smoothly without any stoppages ?	(16) Check if the tension of the threader or of the tension disc is proper, and if there is a flaw on the thread guide. Refer to “How to thread an upper thread” and “Thread tension releasing related”.
Lower thread breakage	(1) Is the threading of the lower thread correct ?	(1) Refer to “How to thread a lower thread”.
	(2) Is the tension of the lower thread proper ?	(2) Adjust the tension properly.
	(3) Are there any greasy stains or lint on the bobbin case ?	(3) Remove the lint and wipe off the stains carefully.

Upper thread can not be cut in thread trimming, Or, upper thread can not be picked up	(1)	Is the movable knife picking up the 2 threads evenly ?	(1)	Adjust its position of attachment .
	(2)	Is the stop position of the needle bar too low ?	(2)	Refer to “Adjustment of the upper shaft sensor”
	(3)	Is the height of the upper thread trimming position too high ?	(3)	Adjust the position of the movable knife so that it comes down 1.5 to 2 mm lower than the needle plate.
	(4)	Is the thread retention spring so tight that the movable knife is pushing in ?	(4)	Adjust the thread retention spring with bending it slightly.
	(5)	Is the thread retention spring so loose that the blade pressure of the movable knife is insufficient. ?	(5)	Adjust the thread retention spring with bending it slightly.
	(6)	Is the sharpness of the movable or fixed knife degraded ?	(6)	Buff it, or replace it with a new one.
	(7)	Is the lower knife cutting the upper thread ?	(7)	Readjust it referring “Adjustment of the lower thread trimming” and “Adjustment of the machine sensor”.
	(8)	Is the sub tension of the upper thread too high ?	(8)	Drive the adjustment screw to reduce the sub tension.
	(9)	Does the tension disc open correctly ?	(9)	Refer to “Adjustment of the thread tension releasing”.
	(10)	Is the thread supply working properly ?	(10)	Replace the part with a proper one if it troubles.
	(11)	Is the air regulator for the upper thread trimming is adjusted to be 0.3 MPa ? (except for BAS-6150 model).	(11)	Refer to “Adjustment of the regulator”.
	(12)	Are gauge sizes of the movable knife, fixed knife and thread retention plate proper ?	(12)	Refer to “Replacement of the upper thread trimming”.
	(13)	Are there any flashes on the movable knife ?	(13)	Buff it, or replace it with a new one.
Lower thread can not be cut in thread trimming	(1)	Is the adjustment of the lower thread trimming cylinder proper ?	(1)	Refer to “Adjustment of the lower thread trimming”.
	(2)	Is the movable knife attached in the proper position ?	(2)	Refer to “Adjustment of the lower thread trimming”.
	(3)	Is the movable knife dedicated to piping ?	(3)	Replace it with a piping dedicated movable knife. Refer to “How to detach the movable and fixed knives”.
	(4)	Is the movable or fixed knife abraded away ?	(4)	Buff it, or replace it with a new one. Refer to “How to sharpen the fixed knife”.

Lower thread does not come up at the start of sewing (Lower thread can not be retained)	(1)	Is an idling protection spring attached to the rotary hook ?	(1)	Insert an idling protection spring.
	(2)	Is the bobbin idling ?	(2)	Expand the spring to increase its tension.
	(3)	Is the movable knife for the lower thread trimming retaining the lower thread ?	(3)	Refer to “Adjustment of the lower thread trimming”.
	(4)	Is the upper thread retained firmly ?	(4)	Refer to the measures of above description in “Upper thread can not be cut in thread trimming, or, upper thread can not be picked up”.
	(5)	Is the thread supply working properly ?	(5)	Replace the part with problems.
Meandering seams	(1)	Is the needle bent, or the needle tip obtuse ?	(1)	Change the needle.
	(2)	Is the carriage feed pressing the material firmly ?	(2)	Adjust the height and angle of the binder. (Refer to “Binder adjustment”) Replace it with a carriage feed rubber C assembly (thin type).
	(3)	Is the binder pressing the material ?	(3)	Adjust the height and angle of the binder. (Refer to “Binder adjustment”)
	(4)	Is the material guide pressing the material ?	(4)	Adjust the height of the material guide. (Refer to “Adjustment of the material guide”)
Stitch skipping	(1)	Is the binder pressing the material ?	(1)	Adjust the height and angle of the binder. (Refer to “Binder adjustment”)
	(2)	Is the material guide pressing the material ?	(2)	Adjust the height of the material guide. (Refer to “Adjustment of the material guide”)
	(3)	Is the needle bent, or the needle tip obtuse ?	(3)	Change the needle.
	(4)	Is the clearance between the needle and the rotary hook blade too wide ?	(4)	Adjust the clearance to be 0.05 mm or less. (Refer to “Clearance adjustment between the needle and the rotary hook”)
	(5)	Is the needle attached correctly ?	(5)	Refer to “How to attach the needle”.
	(6)	Is the threading correct ?	(6)	Refer to “Timing adjustment between the needle and the rotary hook”.
	(7)	Are there thread chips piled up around the rotary hook ?	(7)	Clean up around the rotary hook.
	(8)	Is the folding plate hitting the needle ?	(8)	Shorten the folding length of the folding plate.
	(9)	Is the pinch sleeve on the rotary hook base tightened ?	(9)	Change the pinch sleeve if it can not be tightened by the adjustment.
	(10)	Is the height of the needle bar proper ?	(10)	Refer to “Timing adjustment between the needle and the rotary hook”.
	(11)	Is the timing set properly (too low) ?	(11)	Increase the timing. (Refer to “Timing adjustment”)
	(12)	Is the needle size proper ?	(12)	Change the needle size.

Thread can not be tightened	(1)	Is the threading of the upper thread correct ?	(1)	Refer to “How to thread an upper thread”.
	(2)	Is the upper thread off the tension disc ?	(2)	Refer to “How to thread an upper thread”.
	(3)	Is the binder pressing the material ?	(3)	Adjust the height and angle of the binder. (Refer to “Binder adjustment”)
	(4)	Is the tension and the working range of the thread take up spring proper ?	(4)	Refer to “Thread tension related”.
	(5)	Is the tension of the upper thread too weak ?	(5)	Refer to “Thread tension related”.
	(6)	Is the tension of the lower thread too weak ?	(6)	Refer to “Thread tension related”.
	(7)	Does the tension disc open or close normally ?	(7)	Refer to “Adjustment of the thread tension releasing”.
	(8)	If using flap sewing, is the carriage feed rubber too thick ?	(8)	Replace it with a thinner carriage feed rubber. Refer to “Detachment of the carriage feed and replacement of its rubber”.
Shrinkage by sewing	(1)	Is the material stretchy ?	(1)	Set the needle swing for the start of sewing. (Except for BAS-6150 model) Set the needle feeding for standard sewing. (Except for BAS-6150 model)
	(2)	Is the binder tilted forward ?	(2)	Adjust the height and angle of the binder. (Refer to “Binder adjustment”)
	(3)	Is the tension of the upper or lower thread too high ?	(3)	Reduce the tension. Refer to “Thread tension related”.
	(4)	Is the upper thread supply smooth ?	(4)	Check if the threading and the tension disc are adjusted properly, and if there is a flaw on the thread guide. Refer to “How to thread an upper thread” and “Thread tension releasing related”.
	(5)	Is the needle size proper ?	(5)	Change the needle size.
	(6)	Is the center knife sharp enough ?	(6)	Readjust the blade pressure. Refer to “Blade pressure adjustment of the center knife”. Change the movable knife or the fixed knife.

Needle breakage	(1)	Is the needle attached correctly ?	(1)	Refer to “How to attach the needle”.
	(2)	Is the timing between the needle and the rotary hook proper ?	(2)	Refer to “Timing adjustment of the needle and the rotary hook”.
	(3)	Is the width of the material guide adjusted ?	(3)	Refer to “Adjustment of the material guide”.
	(4)	Is the needle touching the material guide ?	(4)	Refer to “Adjustment of the material guide”.
	(5)	Is the welting cloth or its flap too thick ?	(5)	Increase the gauge size.
	(6)	Is the needle too fine ?	(6)	Change the needle size.
	(7)	Is the material guide pressing the flap firmly ?	(7)	Adjust the height of the material guide. Refer to “Adjustment of the material guide”.
	(8)	Does the moving range of the needle swing stay inside the needle hole ?	(8)	Readjust the needle down position. Refer to “Adjustment of the needle down position”.
	(9)	Is the folding plate jutted out too much ?	(9)	Shorten the folding length of the folding plate. Refer to “Assembly of the carriage feed”.
Malfunction of the upper thread breakage sensor (Aborts when the thread is not broken)	(1)	Is the sensitivity of the sensor proper ?	(1)	Refer to “Adjustment of the upper thread breakage sensor”.
	(2)	Is the stitch number set for the detection too low ?	(2)	Increase the stitch number for the detection. (Refer to “Setting of programs Upper thread breakage monitoring”)
	(3)	The lower thread does not come up.	(3)	Refer to the measures of above description in “Lower thread does not come up at the start of sewing”.
	(4)	Is the upper thread slacken ?	(4)	Roll up the thread to tense it.
	(5)	Is the thread out of the sensor range ?	(5)	Put the thread through the photo sensor.
	(6)	Is the sensor covered with dust or dirt ?	(6)	Clean it up.
Malfunction of the upper thread breakage sensor (Does not abort with the thread breakage)	(1)	Is the sensitivity of the sensor proper ?	(1)	Refer to “Adjustment of the upper thread breakage sensor”.
	(2)	Is the upper thread detection activated ?	(2)	Set up the function on the panel.
Upper thread breakage can not be set	(1)	Is the thread breakage sensor harness connected correctly ?	(1)	Check if P13 on the main PCB is inset firmly. (Confirmation of jumper cables)

Lower thread detector sensor does not work when no thread is remaining in the bobbin	(1)	Is the lower thread detection activated ?	(1)	Set up the function on the panel.
	(2)	Is the starting position for the lower thread winding proper ?	(2)	Refer to “How to wind the lower thread”.
	(3)	Is the sensitivity setting of the sensor amplifier proper ?	(3)	Refer to “Adjustment of the lower thread detector sensor”.
	(4)	Is the lens of the fiber unit unclean ?	(4)	Wipe off the dirt on the lens carefully.
	(5)	Is the bobbin suitable for the lower thread detection ?	(5)	Replace it with a bobbin suitable for the lower thread detection.
	(6)	Is the bobbin case suitable for the lower thread detection ?	(6)	Replace it with a bobbin case suitable for the lower thread detection.
	(7)	Is the reflective surface of the bobbin unclean ?	(7)	Clean up the dirt on the reflective surface with air guns etc.
	(8)	Is the spool in the bobbin uneven ?	(8)	Refer to “How to wind the lower thread”.
	(9)	Is the connection of the fiber proper ?	(9)	Check the connection between the fiber unit and the sensor amplifier.
Lower thread detector sensor worked when the thread is remaining in the bobbin	(1)	Is the sensitivity setting of the sensor amplifier proper ?	(1)	Refer to “Adjustment of the lower thread detector sensor”.
	(2)	Is the direction of the lens correct ?	(2)	Refer to “Adjustment of the lower thread detector sensor”.
Lower thread detection can not be set	(1)	Is the lower thread detection sensor connected correctly ?	(1)	Check if P14 on the main PCB is inset firmly. (Confirmation of jumper cables)
At the end of sewing, carriage feed pauses for a moment before it moves to the corner knife position	(1)	The needle does not stop at the stopping position. Is the adjustment of the needle up sensor or the synchronized sensor proper ?	(1)	Refer to “Adjustment of the machine sensor”. Perform the correction of the stopping position with settings of DSWC 6 to 8.

Welting cloth does not accompany the material	(1)	Is the binder pressing it tightly ?	(1)	Reduce the binder pressure using the panel.
	(2)	Does the binder have any flashes ?	(2)	Buff it, or replace it with a new one.
	(3)	Is the binder adjusted properly ?	(3)	Adjust the height and angle of the binder. (Refer to “Binder adjustment”)
	(4)	Is the welting cloth caught in the material guide ?	(4)	Refer to “Adjustment of the material guide”.
	(5)	Is the thickness of the carriage feed rubber proper ?	(5)	Replace it with a thinner carriage feed rubber. Refer to “Detachment of the carriage feed and replacement of its rubber”.
	(6)	Is the folding plate adjusted properly ?	(6)	Refer to “Assembly of the carriage feed”
	(7)	Is the interlining cloth put upside down ?	(7)	Put it with the adhesive side down.
	(8)	Is the carriage feed width adjusted properly ?	(8)	Refer to “Adjustment of the carriage feed width”).
Right and left widths of the welting cloth are uneven	(1)	Are the right and left widths of the carriage feed even to the binder ?	(1)	Adjust them to be even. Refer to “Adjustment of the carriage feed width”.
	(2)	Is the carriage feed width too wide for the binder ?	(2)	Adjust the clearance between the binder to be within 0.5 to 1 mm. Refer to “Adjustment of the carriage feed width”.
	(3)	Is the binder parallel to the carriage feed ?	(3)	Refer to “Parallelism of the carriage feed”.
	(4)	Is the needle groove of the binder in the alignment with that of the needle plate ?	(4)	Refer to “Binder adjustment”.
	(5)	Is the needle located in the center of the needle hole ?	(5)	Refer to “Binder adjustment”.
	(6)	Are right and left folding lengths of the folding plate equal ?	(6)	Adjust the both sides to be equal. Refer to “Assembly of the carriage feed”.
Corner knife cuts the rising part of the welting cloth	(1)	Is the setting for the corner knife operation correct ?	(1)	Deactivate the folding plate and the flap clamp in the setting of the corner knife operation.
	(2)	Is the corner knife cutting too much ?	(2)	Refrain from using the corner knife in areas within 0.5 mm from seams.
Corner knife position in its lengthwise direction does not match	(1)	Is the cutting length of the center knife sufficient ?	(1)	Increase the cutting length of the center knife. Refer to “Down (ascending) position of the center knife”.
Corner knife position in its horizontal direction does not match	(1)	Is the top of the corner knife aligned with the center of the center knife ?	(1)	Adjust mounting of the cylinder. Refer to “Assembly of the corner knife device”.
Corner knife position is not stabilized	(1)	Is the blade abraded away ?	(1)	Replace the knife with a new one.
	(2)	Is the supply pressure of the air too low ?	(2)	Refer to “Adjustment of the regulator”.

Center knife position is not stabilized	(1)	Are the voltage and the air pressure normal ?	(1)	Reset them correctly.
	(2)	Is it used in a cold region ?	(2)	Set the memory switch 1 to ON (Cold region mode).
Center knife does not cut well	(1)	Is the center knife abraded away ?	(1)	Buff it, or replace it with a new one.
	(2)	Does the fixed knife have nicked edge ?	(2)	Replace it with a new one.
	(3)	Is the knife holder adjusted properly ?	(3)	Readjust it using a jig. Refer to “Blade pressure adjustment of the center knife”.
	(4)	Does the knife mesh entirely with the fixed knife at its lowest position ?	(4)	Readjust it using a jig. Refer to “Blade pressure adjustment of the center knife”.
Stitches are misaligned in N back or V back sewing in flap sewing	(1)	Is the flap pressed by the material guide firmly ?	(1)	Adjust the height of the material guide. Refer to “Adjustment of the material guide”.
Starting position of flap sewing is misaligned	(1)	Is the adjustment of the flap correction data finished ?	(1)	Perform the setting of the correction data.
	(2)	Is the lens of the flap sensor covered with dust ?	(2)	Clean it up with air guns or brushes etc.
	(3)	Is the reflection tape unclean ?	(3)	Clean it up with clothes etc.
	(4)	Is the flap set in the right position ?	(4)	Readjust the positions of the flap gauge and the marking light.
	(5)	Is the material easy to be misaligned ?	(5)	Use the needle swing function.
Flap can not be set	(1)	Is the flap sensor connected correctly ?	(1)	Check if P15 on the main PCB is inset firmly. (Confirmation of jumper cables)
After sewing is completed, welting cloth or flap gets stuck in the flap clamp before the material is sent to the stacker side	(1)	Is the memory SW4 set to ON ?	(1)	Set the memory SW4 to ON.
	(2)	Is the descending speed of the flap clamp too fast ?	(2)	Adjust the valve 13 and 16.
Material can not be stacked	(1)	Is the material placed between the 2 bars ?	(1)	Refer to “Adjustment” of the bar stacker.
	(2)	Is the speed controller adjustment of the valve proper ?	(2)	Adjust it with the speed controller.
	(3)	Is the setting of the stacker sequence (timer) proper ?	(3)	Set it on the panel.
Feed overruns	(1)	Did it overrun forward [E-301] ?	(1)	Set the memory SW6 to ON.
	(2)	Is the feed overrun sensor of backward adjusted properly ?	(2)	Refer to “Adjustment of the home position sensor and the overrun sensor”.

Cylinders in each part are slow in movements	(1) Is the air mixed with water ? (2) Is the air pressure fluctuated ?	(1) Remove the water, or attach a dryer. (2) Increase the capacity of the compressor.
Program can not be revised	(1) Is it in the program lock mode ?	(1) Press ESK and PROGRAM simultaneously to cancel the lock when turning on the power

8-2. Requests and solutions

Request	Solution	Remarks
Increase the cycle time	Increase the feeding speed. Change the setting of the movement timer. Adjust the speed controller of the cylinder. Perform the overlapping operation for bagging cloth sets. Change the setting for foot switches. Change the movements of the binder and the carriage feed. Increase the stitching speed. Change the settings for the closing stitch and the stitching pitch. Change the base point to the further one.	
Increase (decrease) the feeding speed	Select the carriage feed icon to change the moving speed of the carriage feed to the starting point of sewing, or to the corner knife position. Press ENTER and PROGRAM simultaneously to show the system setting. Then change the moving speed to the material set position, stacker position, stand-by position or recess position in the system setting.	Be careful since excessive speed can be dangerous.
Move the needle backward with the material pressed	Set the pick up mode by the following procedure: Select the carriage feed icon, and turn ON the pick up mode icon among items shown.	Using a roller stacker in combination is recommended for fear of hooking the welting cloth by the needle.
Confirm the stitching position before the start of sewing	Press ENTER and PROGRAM simultaneously to show the system setting, and select  in the foot switch menu.	
Change the language	Press ENTER and PROGRAM simultaneously to show the system setting, and select the language setting to change it.	
Bring down the binder temporarily	Press FEED to move the carriage feed back. Hold ENTER down and step on the forward foot switch. (Stepping again on the forward foot switch with holding down ENTER will bring up the binder.)	
Set the movement with thread breakage cases to stop after finishing the sewing	Select the icon of the upper thread breakage monitor, and set the after-thread breakage movement mode to 1.	
Create similar programs	Use program copy and paste.	
Change colors of marking lamps	Select the marking light icon, and change the movement mode number.	
Stretch darts finely for sewing	Using a dart stretching device or a vacuum device is recommended.	Option

Show the history of errors	Turn on the power while pressing ENTER and ESC simultaneously to start up the machine in the SE mode. And press ENTER and PROGRAM simultaneously to show the system setting, and select  .	
Sew smaller things than the bar stacker can manage	Use a roller stacker device in combination.	Option
Hold the waist of trousers	Using a waist presser device is recommended.	Option
Keeping off of showing errors when opening the face plate	<BAS-6200 and 6220 models> Turn on the power while pressing ENTER and ESC simultaneously to start up the machine in the SE mode. Then press ENTER and PROGRAM simultaneously to show the system setting, and select  . Set the memory SW2 to ON. <BAS-6150 model> Hold [ENTER] key down and press [SELECT] key to enter the environmental setting mode. Set the parameter 62 to ON.	
Avoid confusing the thread trimming switch and the FEED switch	<BAS-6200 and 6220 models> Turn on the power while pressing ENTER and ESC simultaneously to atart up the machine in the SE mode. Then press ENTER and PROGRAM simultaneously to show the system setting, and select  . Set the memory SW3 to ON. <BAS-6150 model> Set the parameter 63 to ON.	
Set the automatic start of sewing to follow the descent of the binder	BAS-6200: System setting - Foot SW – Automatic start setting BAS-6150: Set the environmental parameter 19 to ON.	
Change the time for the automatic start	BAS-6200: System setting - Foot SW - Time setting of automatic start BAS-6150: Set the environmental parameter 20 to ON.	Can be set within 0.09 to 9.9 seconds.
Set the operation so as to be progressed by just pressing a foot switch Change the start switch pedal	Press ENTER and PROGRAM simultaneously to show the system setting, and select the foot switch. Then the start switch pedal can be changed here. Turning ON the timer foot switch will set the operation to be progressed by just pressing a foot switch.	
Reduce the number of stepping on foot switches	Any of the following measures can be taken: (1) Set the carriage feed so that it returns after sewing. (2) Set the carriage feed so that it goes down immediately after its return. (3) Set the automatic ON and OFF to the vacuum device. (4) Bring down the right and left carriage feeds simultaneously. (5) Use the automatic start function.	
Perform an operation test to the bar stacker	Press ENTER and PROGRAM simultaneously to show the system setting, and select the stacker  . Press  .	

Perform an operation test to the roller stacker	Select the roller stacker icon and press the test switch.	
Fix the panel so as not be changed	Turn on the power while pressing ESK and PROGRAM simultaneously to set the program lock.	
Standing operation in sewing	Using a spacer for standing operation is recommended.	Option
Increase the speed of the stacker	Adjust the speed controller. Use the 6 step mode.	

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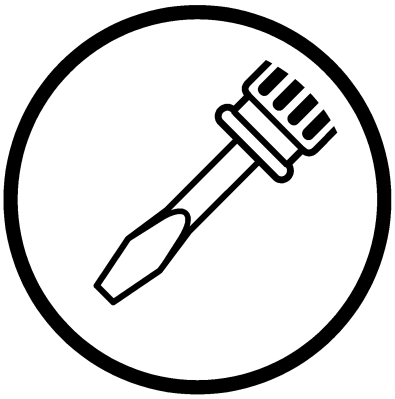

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