

# USER'S MANUAL

# SJS/A-PS/A SJS/A-PS/B

Direct Drive Automatic Pocket Setter Sewing Machine

SunStar CO., LTD.

1) FOR AT MOST USE WITH EASNESS, PLEASE CERTAINLY READ THIS MANUAL BEFORE STARTING USE

2) KEEP THIS MANUAL N SAFE PLACE FOR REFERENCE WHEN THE MACHINE BREAKS DOWN.

MME-090929



- 1. Thank you for purchasing our product. Based on the rich expertise and experience accumulated in industrial sewing machine production, SUNSTAR will manufacture industrial sewing machines, which deliver more diverse functions, high performance, powerful operation, enhanced durability, and more sophisticated design to meet a number of user's needs.
- 2. Please read this user's manual thoroughly before using the machine. Make sure to properly use the machine to enjoy its full performance.
- 3. The specifications of the machine are subject to change, aimed to enhance product performance, without prior notice.
- 4. This product is designed, manufactured, and sold as an industrial sewing machine. It should not be used for other than industrial purpose.



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# Machine Type and Specifications



| Machine Type                  | Direct Drive, High Speed, 1-Needle, Lock-Stitch M/C |  |  |  |  |  |
|-------------------------------|---|--|--|--|--|--|
| Sewing Scope                  | 250mm(X) × 250mm(Y)                                 |  |  |  |  |  |
| Sewing Speed                  | 3600 spm (Stitch length: 3mm or below)              |  |  |  |  |  |
| Stitch Length                 | 0.1mm~6mm   |  |  |  |  |  |
| Needle                        | DP×17 #20 (#18~22)                                  |  |  |  |  |  |
| Needle Bar Stroke             | 34.6mm  |  |  |  |  |  |
| Presser Foot Stroke           | Standard 4mm (0.5~10mm)                             |  |  |  |  |  |
| Presser Foot Lift             | 20mm  |  |  |  |  |  |
| Trimmer                       | Mounted   |  |  |  |  |  |
| Emergency Stop Function       | Available   |  |  |  |  |  |
| Hook In Use                   | Double-capacity Rotary Hook                         |  |  |  |  |  |
| Memory                        | 3.5″ Floppy Disk, CF Card                           |  |  |  |  |  |
| Graphic OP                    | Options   |  |  |  |  |  |
| Number of Max. Input Patterns | Max. 691 Patterns                                   |  |  |  |  |  |
| Lubrication                   | Automatic   |  |  |  |  |  |
| Pneumatic Pressure            | 120N / /min.  |  |  |  |  |  |
| Voltage                       | Rated supply voltage $\pm 10\%$ 50/60 Hz            |  |  |  |  |  |
|                               | MAIN MOTOR 500W AC SERVO MOTOR                      |  |  |  |  |  |
| Motor                         | X-MOTOR 1Kw AC SERVO MOTOR                          |  |  |  |  |  |
|                               | Y-MOTOR 750W AC SERVO MOTOR                         |  |  |  |  |  |
| Power consumption             | 600VA   |  |  |  |  |  |



# **2** Safety Rules

# 2.1) Safety Stickers

The safety stickers in this user's manual are divided into **Caution**, **Danger**, and **Warning**. They indicate that if the safety rules are not kept, injury or damage to machine might occur as a result.

| No.     | Name    | Description   |  |
|---------|---------|---|--|
| Caution | Caution | If the machine is not properly handled, it may cause injury to users or physical damage to the machine.                           |  |
| Warning | Warning | If the machine is not properly handled, it may cause death or severe injury to users.   |  |
| Danger  | Danger  | If the machine is not properly handled, it may cause death or severe injury to users, and the urgency of the danger is very high. |  |

# 2.2) Machine Delivery



## 2.3) Machine Installation

| Caution | <ul> <li>Depending on the installation environment, function errors, breakdown, or other physical damage might result. Make sure to meet the following conditions for machine installation:</li> <li>1) The workbench or table where the machine is installed should be durable enough to endure the weight of the machine (see the name plate).</li> <li>2) Dust and humidity are the cause of machine pollution and erosion. Please install an air conditioner and conduct regular maintenance of the machine.</li> <li>3) Install the machine at the place where it is not exposed to direct sunlight (if the machine is exposed to direct sunlight for a long time, it may cause discoloration or deformation).</li> <li>4) Secure the space around the machine. Place the machine at least 50cm away from the left, right, and rear walls to secure sufficient space for maintenance activities.</li> <li>5) Explosion risk : To prevent possible explosion, immediately stop the machine operation if there are inflammable materials in the air.</li> <li>6) Lighting : The machine does not offer lighting devices. When necessary, install needed lighting.</li> <li>7) Overturn risk : Do not install the machine on the unstable stand or table. If the machine drops, it may cause injury or severe impact on the machine. If the machine is suddenly stopped or the external impact is imposed, the machine might be capsized.</li> </ul> |
|---------|--|
|         | stopped of the external impact is imposed, the machine might be capsized.  |

### 2.4) Machine Operation



# 2.5) Repair and Maintenance

| •      | <ul> <li>When repair is needed, properly trained SunStar A/S engineers should be called to conduct the repair.</li> <li>1) Cut off the main power before machine cleaning and repair. Wait for four minutes until the machine is completely discharged.</li> </ul>   |
|--------|--|
| Danger | For cleaning or repairing the main shaft motor and the X/Y drive box, wait for ten minutes for complete discharge after the power is cut off.  |
|        | <ol> <li>Do not change the machine specifications or parts without substantial consultation with<br/>SunStar because this may cause safety issues during machine operation.</li> <li>Use authentic SunStar parts for repair or part replacement during A/S activity.</li> <li>Put back all safety covers which are removed for repair activities after repair is completed.</li> </ol> |

# 2.6) Safety Labels

| CAUTION<br>경 고Image: Caution of the end | Do not operate without finger guard and safety devices. Before threading, changing bobbin and needle, cleaning, etc., turn off the main switch.                   |
|---|---|
| WARNING<br>경고Image: Constraint of the second  | High-voltage current will cause injury. Be sure to wait at least 360 seconds before opening this cover after turning off main switch and unplugging a power cord. |
| Injury may be caused by winding.           Be sure to turn off the power before cleaning, lubricating, adjusting or repairing.  | Make sure to close the cover before operating the machine.<br>Keep hands away from moving parts of the machine during operation. It<br>may cause injury.          |



# 2.7) Location of Safety Labels



# **3** Machine Parts

# 3.1) Parts Name





# 4

# **Checkpoints Before Machine Installation**

# 4.1) Installation Environment

- 1) Do not use the machine if the voltage is 10% higher than the rated voltage to prevent accidents caused by wrong operation.
- 2) Check the appropriateness of the pressure of pneumatic devices such as air cylinder to prevent accidents caused by wrong operation.
- 3) To make sure safe operation, keep the operating temperature remain within the range ==> Ambient temperature during operation: 5 ~ 35°C
- 4) Operating humidity: 45% ~ 85% (relative humidity)
- 5) When the machine is moved from cold to warm place, dewdrops could be created on the machine surface. To prevent wrong operation of electronic parts, remove the dewdrops before turning on the power.
- 6) To prevent wrong operation of electronic parts, stop the operation at the time of thunder and lightening and unplug the power cord.

# 4.2) Electricity Environment

1) Power Voltage

The power voltage used should be within the range of +/-10% of the rated voltage.

- The power frequency used should be within the range of +/-1% of the rated frequency (50/60Hz).
- Electromagnetic Wave Noise The sewing machine should not share the power outlet with the product having powerful magnetic field or high frequency. They should be placed away from each other.
- 3) Use low voltage when installing attachments and accessories to the control box.
- 3) Take caution not to spill water and coffee into the control box and the motor.
- 4) Do not drop the control box and the motor.

| WARNING  |  |  |  |  |
|--|--|--|--|--|
| <ul> <li>The machine must be installed by properly trained engineers.</li> <li>Inquiry on electric wiring should be made to sales agency or electricity engineer.</li> <li>The machine weighs 400kg or above, so that it should be carried by two or more people.</li> </ul> | <ul> <li>Do not plug the power cord until the installation is complete. If the pedal is mistakenly stepped, the machine operates and may cause damage to the machine.</li> <li>Properly install a ground wire. Incomplete ground wire installation may cause electric shock or wrong operation.</li> <li>Properly place safety covers of the machine and motors during their operation.</li> </ul> |  |  |  |

# **Machine Installation**

# 5.1) Body Installation

- 1) Install the body on the even and sturdy place. The balance of the main body is closely related to the machine noises and vibration.
- 2) Loosen the nut ① and turn the balance adjusting stand② until the caster ③ is lifted in the air.
- 3) When the installation is complete, fasten the nut ① and fix the balance adjusting stand ②.





The balance adjusting stand can be adjusted up to 48mm. Make adjustment within the range.

## 5.2) Thread Stand Installation

- 1) Install the thread stand as in the figure at the right top of the table.
- 2) Assemble the thread stand in advance and insert it into the table. Use a nut to firmly fix the thread stand.



## 5.3) Pocket Load Box Installation

- 1) Install the pocket load box as in the figure at the slot on the left bottom of the table.
- The box is used to load prepared pockets for sewing. Do not place other tools in the box. This may cause machine damage or injury.





# 5.4) Operating Panel Installation

- 1) Install the operating panel at the left side of the pants load frame ① as in the figure.
- Adjust the operating panel to the proper height for convenient use and fix it with screws (2).
- Adjust the front/rear position of the operating panel for convenient use and fix the operating panel with a screw (3).



# 5.5) Air Gun Installation

- 1) Install the air gun ①, which is supplied in the accessory box, at the air gun hanger ② installed below the body center.
- 2) Insert the socket ③ into the socket ④ at the body center, and then the installation is complete.
- 3) Remove fabric scraps and other dust generated from sewing on a frequent basis using the air gun. The regular cleaning could prevent wrong operation of the machine and extend the machine's lifespan.



### 5.6) Foot Pedal Installation

1) Connect the foot pedal plug to the control box.



## 5.7) Pneumatic Device Installation

- 1) Fix the filter regulator ① to the manifold bracket at the rear side of the body using bolts.
- 2) Fix the solenoid valve ② to the manifold bracket using bolts.
- 3) Connect the air hoses on the machine side to each solenoid valve.
- 4) Connect the cables linked to the control box to the solenoid valves matching the number.



### 5.8) Air Hose Installation and Air Pressure Adjustment

### 5.8.1) Air Hose Connection

- 1) Connect the quick joint socket ① to the air hose ②.
- Connect the quick joint socket ① to the quick joint plug ③.
- Operate the finger valve ④ to drive in the air and check if the pneumatic regulator scale points at 5.0~5.5Kgf/cm<sup>2</sup>.





Keep in mind that when the air is supplied, some parts on the machine or the load frame may move.

### 5.8.2) Air Pressure Adjustment

- 1) The air pressure used is 5.0~5.5Kgf/cm<sup>2</sup>.
- Pull up the regulator knob and spin it to change the air pressure. Turn the knob in the positive (+) or negative (-) directions to change the air pressure within 5.0~5.5Kgf/cm<sup>2</sup>. After adjustment is complete, place the knob ① back and firmly fix it.
- 3) After long-time use, water is gathered at the regulator tank ②. Please empty the tank. If the water sits at the tank for a long time, it may be absorbed by the machine.
- 4) Press the drainage button ③ on a regular basis to remove the water.





# 5.9) Load Frame Installation

- 1) Fix the stacker (ass'y) ① to the stacker holder ② with bolts using the saddle stopper ③.
- Connect the cable ④ and the pneumatic hose ⑤ to the solenoid valve ⑥ of the stacker.
- 3) Fix the stacker safety guide ⑦ using bolts.



# **Preparation Before Use**

# 6.1) Oil Supply

1) There is an oil tank to lubricate major moving parts of the arm. Check the oil volume at the oil tank and make sure that the oil tank is properly filled.





When using the machine after it has been unused for a long time, oil supply is a must. Use the machine at 70% of the maximum speed for some two weeks and then use the machine at the full speed. This could enhance durability of the machine.

2) The arm has the indicator which indicates the remaining oil volume at the oil tank installed to the bed. Check the oil indicator and supply oil until it reaches the max. mark.



3) There is an oil cap inside the bed gear box on the upper bed. Check the remaining oil volume and fill the oil to the half of the oil tank.





# 6.2) Needle Installation

Loosen the needle fixing screw on the needle bar and put the long groove of the needle headed to the left. Insert the needle until the needle head touches the end of the needle hole and fix the needle with the screw.



### 6.3) Upper Thread Placement

Locate the thread take-up lever at the highest position and place the upper thread as in the figure.



## 6.4) Lower Thread Placement

- Insert the bobbin into the bobbin case as in the figure. Looking from the back of the bobbin case, the bobbin should be inserted in the way that it can be spun clockwise.
- 2) Pass the lower thread through the slot on the bobbin case and insert the thread into the thread hole.
- 3) Make the lower thread protrude 25mm from the thread hole.



### 6.5) Bobbin Placement and Removal

Hold the bobbin case handle and push the bobbin case until click sound is heard.





If the machine operates with the bobbin case not fully inserted, thread entanglement or bobbin case ejection might result.

### 6.6) Upper and Lower Thread Tension Adjustment

 Upper Thread Tension Adjustment Turn the tension adjusting nuts (3), (4) of the main thread adjusting device (1) and the sub thread adjusting device (2) clockwise to strengthen the upper thread tension, and vice versa.





2) Lower Thread Tension Adjustment Turn the tension adjusting screw on the bobbin case clockwise as in the figure to strengthen the tension and vice versa.



## 6.7) Lower Thread Winding

- 1) Insert the bobbin into the thread winder driving shaft on the thread winder base attached to the top cover.
- 2) Place the thread winder lever close to the bobbin and operate the machine.
- 3) After the thread winder lever is separated from the bobbin, use the thread winder blade to cut the bobbin thread.



# 6.8) Presser Foot Height Adjustment

- 1) Place the needle bar at the lowest position and loosen the presser foot screw (a).
- 2) Adjust the presser foot height to set the distance between the presser foot bottom and the sewing fabric at 0.5mm (the length of thread used) and fasten the screw.



# 6.9) Waste Oil Handling

When the waste oil can located below the bed supporting bracket is filled with waste oil, remove and empty the can.





# Maintenance

Caution

1. The sewing machine is tooled at the best conditions when shipped out of factory. Do not change the settings of the machine except trained engineers and use authentic SunStar parts only for part replacement.

2. Power must be turned off before conducting maintenance activities.

# 7.1) Needle Bar Height Adjustment

Loosen the needle bar holder screw at the lowest position of the needle bar. As in the right figure, place the needle bar bushing bottom at the up marked line appropriate for the needle used and fasten the needle bar screw.



### 7.2) Adjustment of Needle and Hook

 As in the right figure, when the needle bar ascends from the lowest position, place the needle bar lower bushing bottom at the down marked line appropriate for the needle used.



- Loosen the three hook fixing screws and set the hook's pointed part (3) at the center of the needle (4). The distance between the hook's pointed part (3) and the needle should be 0.05~0.1mm.
- 3) When adjustment is complete, tightly fasten the three fixing screws ②.



# 7.3) Presser Foot Adjustment

 Set the end of the presser foot driving cam at the center of the upper shaft marked line. Set the cam's marked line to overlap the upper shaft's marked line. Then fasten the tightening screw ①.





If the presser foot driving cam is not properly positioned, the up/down movement timing of the presser foot may not be right. This may cause the clash between the needle bar and the presser foot.

2) Presser Bar Height Adjustment

Adjust the presser bar holder to make the presser bar protrude 24mm. After confirming that the needle passes through the center of the presser foot, fasten the tightening screw ①.





Tighten the presser bar screw ① until the pressure is about 40~45Kgf/cm<sup>2</sup>. If the pressure is too high, it may cause deformation of the presser bar and cause problems in machine operation.

- 3) Adjustment of Presser Foot Adjusting Arm
  - (a) Loosen the position link stopper screw and create space between the position link stopper ④ and the hinge screw for presser foot driving link fixing ③.
  - (b) Loosen the fork link screw (1) and place the presser foot link hinge screw (2) at the right side of the presser foot adjusting arm. Then tightly fasten the presser foot link hinge screw (2).
  - © Turn the hand pulley to locate the needle bar at the lowest position.
  - (d) Lift the presser bar to set the distance between the presser bar holder and the presser bar bushing at 4mm and tightly fasten the fork link screw ①.





If there is no space between the presser bar holder and the presser bar bushing, interference and noises occur during machine operation. If screws are not tightly fastened after adjustment, damage might result during operation.

(e) Turn the position link stopper screw to place the position link stopper ④ close to the hinge screw for presser foot driving link fixing ③.



If the hinge screw for presser foot driving link fixing ③ does not closely contact the end of the position link stopper ④, vibration and noises may occur during operation.

(f) Tightly fasten the fork link screw (1) and check any clearance of the presser foot adjusting arm in the vertical direction. Check the tightening status of screws and adjust the presser foot stroke.



4) Presser Foot Stroke Adjustment (Presser foot up/down movement adjustment)
Loosen the hinge screw for the presser foot adjusting arm and move it in the A direction. This increases the stroke of the presser foot. If it is moved in the B direction, this decreases the stroke of the presser foot (The default value is 4mm).



### 5) Presser Foot Height Control (Optional)

- (a) Loosen the two fixing screws(1) and then the fixing nut(2).
- (b) Turn the height adjusting screw(3) in the arrow direction (clockwise) to adjust the height.
- © When adjustment is complete, fasten the two fixing screws(1) and one fixing nut(2).



\* The scale marked on the cylinder bracket (4) reads from 7mm to 2mm. It indicates the height from the needle plate face to the lowest presser foot position.

### 7.4) Adjustment of Thread Release and Dish Opening

- 1) Loosen the thread release air cylinder bracket screw ①.
- 2) Perform manual trimming and adjust the position of the thread guide dish to make it separated.
- 3) The proper opening of the thread guide dish is  $0.8 \sim 1.0$  mm.
- 4) When the thread release air cylinder moves in the needle bar direction, the opening of the thread guide dish grows bigger. When the thread release air cylinder moves in the upper shaft motor direction, the opening of the thread guide dish grows smaller.
- 5) When adjustment is complete, confirm smooth operation of the cylinder and fasten the screw.





# 7.5) Trimmer Timing Adjusting

- 1) Turn the pulley to locate the thread take-up lever at the highest position.
- Push the trimmer lever ① with a finger and make the edge ③ of the moving blade ② move 1~1.5mm further from the end of the fixing blade ④.



- 3) Loosen the trimmer cam screw (5) and push the trimmer solenoid shaft (6) with a hand. (In this case, the proper initial distance between the trimmer cam (7) and the roller hinge screw (8) is 0.5mm).
- 4) Turn the trimmer cam ⑦ with a hand and set the trimmer cam ⑦ to contact the end of the roller's moving part ⑨ and the roller ⑩. Then fasten the trimmer cam screw ⑤.
- 5) Connect the return spring.



### 7.6) Blade Adjustment and Replacement

### 7.6.1) Fixed Blade Adjustment

- Loosen the fixed blade tension adjusting nut ① with a box wrench and loosen the tension adjusting screw ②.
- 2) Move the moving blade and make its tip contact the tip of the fixed blade as in the figure.
- 3) Adjust the fixed blade tension adjusting screw and make the tips of the two blades smoothly.
- After adjustment is complete, use the box wrench in the accessory box to fasten the tension adjusting nut ①.



### 7.6.2) Moving Blade Replacement

- To replace the moving blade ①, first of all, manually turn the pulley to locate the needle at the highest position, and then remove the needle plate.
- 2) Loosen the two moving blade fixing screws ② as marked in the figure.
- 3) For assembly, follow the reverse order of disassembly.



### 7.6.3) Fixed Blade Replacement

- To replace the fixed blade ①, loosen the hook holder screw ② as in the figure. Then remove the washer ③ and the hook holder ④ and loosen the fixed blade screw ⑤.
- 2) For assembly, follow the reverse order of disassembly.





 When the tip of the fixed blade is worn away, grind it on the greased grindstone.



### 7.7) Hook Lubrication Adjustment

- 1) When the lubrication adjusting screw ① is turned clockwise (+ direction), the lubrication volume increases.
- 2) When the lubrication adjusting screw ① is turned counter-clockwise (- direction), the lubrication volume decreases.



- 3) Conduct the idle operation of the sewing machine for some 3 minutes and place the lubrication testing paper as in the figure. Operate the machine for 5 seconds and check the oil volume sprayed to the test paper.
- 4) Conduct the lubrication volume check three times. If the sprayed oil volume is not below the minimum limit or above the maximum limit, it means lubrication volume is proper (If lubrication volume is too small, hook may have problem. If lubrication volume is too much, it may pollute sewing fabric.)



### 7.8) Adjustment of Main Thread Adjusting Device

- Turn the tension adjusting nut (a) for the thread adjusting device clockwise and the tension of the upper thread gets stronger, and vice versa. Thread tension is adjusted depending on sewing conditions including fabric, thread, and stitch count. Therefore, adjust the thread tension in line with situations.
- 2) The tension of the thread take-up spring can be adjusted by inserting the screwdriver into the nut (b) on the thread tension adjusting device shaft. When the nut is turned clockwise, the thread tension spring tension gets stronger, and vice versa.



- 1) With no thread placed on the thread take-up spring, loosen the thread sensing plate screw and set the thread take-up spring to contact the thread take-up sensing plate. Then fasten the tightening screw.
- 2) When the thread take-up spring's stroke is changed, adjust the location of the thread sensing plate to make sure that the thread take-up spring and the thread sensing plate contact each other.







Make sure that the thread sensing plate does not contact other metals than the thread take-up spring. If it does, thread might not be properly detected.

### 7.10) Thread Winder Adjustment

1) The wound thread volume on the bobbin can be adjusted using the thread winder adjusting plate. When the bobbin thread volume is high, loosen the tightening screw and move the thread winder adjusting plate in the A direction. When the wound thread volume on the bobbin is small, turn the thread winder adjusting plate in the B direction.





### 7.11) Adjustment of Driving Belt Tension



- 1. When the tension adjustment of each driving belt is needed, properly trained SunStar engineers or equivalent experts should conduct the tension adjustment. Otherwise, embroidery quality and machine operation might be affected.
- 2. Before adjusting each driving belt's tension, turn off the power of the machine.

### 7.11.1) Specifications of Driving Belt Tension Adjuster (Sound wave-type belt tension meter)

#### 7.11.2) Adjustment of X-shaft Timing Belt Tension

- 1) Motor Driving Part Timing Belt
  - Disassemble the X-Y cover and check the X-motor driving part timing belt tension using the sound wave-type belt tension meter.
  - ② Set the X-motor driving part timing belt tension at 1.5~2kgf according to the sound wave-type belt tension meter when the belt center (A) of the driving pulley ④ and the driven pulley ② has an impact created by fingers or equivalent tool.
  - When the X-motor driving timing belt tension is adjusted, the followings are the input data for the sound wave-type belt tension meter.
     Weight: 3.8g/m
     Wide: 35mm/#R
     Span: 104mm
  - ④ When adjusting the tension of the X-motor driving part timing belt, loosen the nut ⑤ assembled with the tension adjusting bolt ⑥ and loosen the fixing bolts ③ (3EA) which fix the X-motor bracket ⑦ to the extent that the motor bracket ⑦ can move.





If the tension adjusting bolt (6) is turned without loosening the fixing bolts (3), it may cause the damage to the machine.

- (5) When the tension adjusting bolt (6) is turned clockwise, the X-motor bracket (7) and the X-driving pulley (4) are pulled to the bolt direction. This increases the tension of the timing belt (A), and vice versa.
- (6) When tension adjustment is complete, tightly fasten the nut (5) and the fixing bolt (6).
- ⑦ Fix the X-motor bracket ⑦ with the fixing bolts ③ (3EA).

#### 2) X-Feed Timing Belt

- Disassemble the X-Y cover and check the X-feed timing belt tension using the sound wave-type belt tension meter.
- ② Set the X-feed timing belt tension at 26~27kgf according to the sound wave-type belt tension meter when the X-feed base ⑥ is moved to the right side, and the belt center ④ of the timing belt fixing plate ④ and the X-driven pulley ② has an impact created by fingers or equivalent tool.
- When the X-feed timing belt tension is adjusted, the followings are the input data for the sound wave-type belt tension meter.
   Weight: 3.8g/m
   Wide: 35mm/#R
   Span: 597.5mm
- When adjusting the tension of the X-feed timing belt, loosen the nut ③ assembled with the tension adjusting bolt ②, and loosen the fixing bolts ① (8EA) which fix the driven pulley bracket ④ to the extent that the driven pulley bracket ④ can move.



If the tension adjusting bolt O is turned without loosening the fixing bolts O, it may cause the damage to the machine.

- (5) When the tension adjusting bolt (2) is turned clockwise, the driven pulley (5) and the driven pulley bracket (4) are pulled to the bolt direction. This increases the tension of the timing belt (A). When the tension adjusting bolt is turned counter-clockwise, belt tension decreases.
- (6) When tension adjustment is complete, tightly fasten the nut (3) and the fixing bolt (2).
- O Fix the driven pulley bracket A with the fixing bolts D (8EA).

### 7.11.3) Adjustment of Y-Shaft Timing Belt Tension

1) Motor Driving Part Timing Belt

Caution

- Disassemble the X-Y cover and check the Y-motor driving part timing belt tension using the sound wave-type belt tension meter.
- ② Set the Y-motor driving part timing belt tension at 1.5~2kgf according to the sound wave-type belt tension meter when the belt center (A) of the driving pulley (5) and the driven pulley (6) has an impact created by fingers or equivalent tool.





③ When the Y-motor timing belt tension is adjusted, the followings are the input data for the sound wave-type belt tension meter.

Weight: 3.8g/m Wide: 35mm/#R Span: 87.5mm

When adjusting the tension of the Y-motor timing belt, loosen the nut ③ assembled with the tension adjusting bolt
② and loosen the fixing bolts ① (8EA) which fix the Y-motor tension adjusting bracket to the extent that the driven pulley bracket ④ can move.



If the tension adjusting bolt @ is turned without loosening the fixing bolts ①, it may cause the damage to the machine.

- (5) When the tension adjusting bolt (2) is turned clockwise, the Y-driving pulley (5) and the Y-motor tension adjusting bracket (4) are pulled to the bolt direction and the timing belt tension increases. When the tension adjusting bolt (2) is turned counter-clockwise, the belt tension decreases.
- (6) When the tension adjustment is complete, tightly fasten using the nut (3) and the fixing bolt (2).
- O Use the fixing bolts O (8EA) to fix the Y-motor tension adjusting bracket A.

#### 2) Y-Feed Timing Belt

- ① Disassemble the X-Y cover and check the Y-feed timing belt tension using the sound wave-type belt tension meter.
- ② Move the swing arm ⑦ to the left and set the Y-feed timing belt tension at 18~19kgf according to the sound wave-type belt tension meter when the belt center of the timing belt fixing plate ⑥ and the Y-driven timing pulley A ⑤ has an impact created by fingers or equivalent tool.
- ③ When the Y-feed timing belt tension is adjusted, the followings are the input data for the sound wave-type belt tension meter.

Weight: 3.8g/m Wide: 35mm/#R

Span: 437.5mm

When adjusting the tension of the Y-feed timing belt, loosen the nut ③ assembled with the tension adjusting bolt
② and loosen the fixing bolts ① (4EA) which fix the Y-feed pulley bracket ⑧ to the extent that the feed pulley bracket ④ can move.



If the tension adjusting bolt @ is turned without loosening the fixing bolts ①, it may cause the damage to the machine.

- (5) When the tension adjusting bolt (2) is turned clockwise, the Y-feed pulley (8) and the Y-feed pulley bracket (4) are pulled to the bolt direction. This increases the tension of the timing belt (A), and vice versa.
- 6 When tension adjustment is complete, tightly fasten the nut ③ and the fixing bolt ②.
- O Fix the Y-feed pulley bracket O with the fixing bolts O (4EA).



# 7.12) X, Y Origin Setting

### 7.12.1) Y-shaft Origin Setting

- 1) Move the feed plate ① fully toward the outer presser plate ②. Adjust the outer presser plate ② to make the two holes of the feed plate ① overlap the two holes of the external presser plate ②, and then fix the plates with the origin adjusting pin ③.
- 2) Loosen the fixing screw ④ for the X-Y sensor bracket ⑧ attached to the X-feed base ⑦ and adjust the X-Y sensor bracket to place the center of the sensor ⑤ at the right end of the Y sensor plate ⑥. When adjustment is complete, tightly fasten the bracket with a fixing bolt ④.
- 3) Loosen the Y-sensor plate fixing screw (9) and set the distance between the sensor (5) and the sensor plate (6) at 1.5mm.





### 7.12.2) X-shaft Origin Setting

- 1) Move the feed plate ① fully toward the outer presser plate ②. Adjust the outer presser plate ② to make the two holes of the feed plate ① overlap the two holes of the external presser plate ②, and then fix the plates with the origin adjusting pin ③.
- 2) Loosen the X-Y sensor bracket fixing bolt ① and adjust the X-Y sensor bracket ③ to place the center of the sensor ① at the right end of the X sensor plate ②. When adjustment is complete, tightly fasten the bracket with a fixing bolt ①.
- 3) Loosen the X-sensor plate fixing bolt (4) and set the distance between the sensor (1) and the sensor plate at 1.5mm.



## 7.13) Pocket Setter Replacement

### 7.13.1) Pocket Setter Ordering

1) Go to <u>www.sunstarcs.com</u> and select a language.



2) Enter customer ID and password.

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3) Press No. 1 or No. 2 for ordering.



4) Pick a desired pocket design and enter figures.

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5) With an invoice popping up on the screen, the ordering is completed.



#### 7.13.2) Feed Plate Replacement

- 1) Loosen the connection shaft screw ① and separate the feed plate ④.
- Loosen all 8 feed plate fixing bolts (2) and disassemble the connection block (3).
- Assemble the block ③ to the new feed plate with 8 fixing bolts ② and connect it to the cylinder connection block ⑤.
- Tightly fix the shaft using the connection shaft fixing screw ①.



### 7.13.3) Outer Presser Plate Replacement

- 1) Loosen the connection shaft screw ① and separate the feed plate ④.
- Loosen all 8 outer presser plate fixing bolts (2) and disassemble two connection blocks (3).
- Assemble two connection blocks (3) to the new outer feed plate with 8 fixing bolts (2) and connect it to the outer presser plate connection block C (5).
- 4) Use the connection shaft screw ① to tightly fix the connection shaft.





### 7.13.4) Replacement of Inner Presser Plate Guide

- 1) Loosen the fixing nut① and the fixing screw②, and disassemble Clamp Guide 2-C③, Clamp Guide 2-L④, and Clamp Guide 2-R⑤.
- 2) Assemble three new clamp guides with the fixing nut(1) and the fixing screw(2).





7.13.5) Replacement of Inner Presser Plate



1) Loosen the four fixing screws(1) to change the clamp size and separate the clamp plate (lower)(2).



2) Loosen the five fixing screws<sup>1</sup>, and separate Clamp Guide 1-C<sup>2</sup>, Clamp Guide 1-L<sup>3</sup>, and Clamp Guide 1-R<sup>4</sup>.



- 3) Loosen the four fixing screws① and separate the fixing plate⑦ and the cylinder connection link⑥. Separate the clamp link(C)⑧, the fixing pin(C)⑤, and four fixing pins (L)④.
- 4) Loosen the four fixing screws(3) and separate the clamp plate (upper)(9). Replace with a new clamp plate (upper).



5) Loosen the two fixing screws(1) and separate the inner presser plate link(C)(2). Replace with a new link.



# 7.14) Clamp Replacement for Changing General Pattern Use



1) Loosen the four socket set screws.



2) Disassemble the outer presser plate① and the inner presser plate bracket②.



3) Assemble the upper feed plate① with the block⑤ as in the figure. Use the two fixing screws③ to fix the shaft. Fix the lower feed plate② to the body bracket⑥ using the two fixing screws④ as in the figure.



### 7.15) Laser Pointer Installation (Optional)



1) Insert the laser pointer stand ① into the table, and fix it using the washer ⑨ and the nut ⑧.

2) Insert the connection block ④ into the laser pointer stand ①, and fix it with the fixing screw ①.

3) Insert the connection block ③ into the laser pointer stand ②, and fix it with the fixing screw ①.

4) Insert the connection block (5) into the laser pointer stand (2), and fix it with the fixing screw (2).

5) Insert the connection block ④ into the laser pointer stand ③, and fix it with the fixing screw ③.

6) Insert the connection block (6) into the laser pointer stand (3), and fix it with the tightening screw (4).

7) Insert the laser pointer 0 into the connection block, and fix it with the tightening screw 5.



# 7.16) Pneumatic System Circuit Diagram



# 7.17) Former Clamp Replacement

01

Loosen the two bolts ① with the wrench. Loosen the four bolts ② with the wrench in the same way. Disassemble and take out the bracket ③ and the push device ④.



02

Loosen the six socket set screws ① with the wrench and disassemble the clamp base ②.





# 03

Loosen the four screws ① with the wrench and disassemble the clamp ②. Insert a new clamp and assemble it with the four screws.















Loosen the two screws ① with the screwdriver and disassemble the block ②. Replace the pocket setter and then assemble it.



06



Place the assembly ① made in process #3 as in the figure and fix it with six socket set screws ②. Pull down the pocket setter ④ as in the figure and set the gap from the pocket groove ① at 0.5mm. Then fix it using the hand screw ③.

# 07



Set the distance between the end of the side push device ① and the end of the groove ② at 1~1.5mm, and fix them using six fixing screws ③.