

User's Manual

SPS/E-BS1201 Series SPS/E-BR1201 Series

Electronically Controlled Bartack Sewing Machine (Machine Structure Part)



MME-070427



- 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



Туре	SPS/E-BS1201H	SPS/E-BS1201M	SPS/E-BS1201L	SPS/E-BS1201K	SPS/E-BS1201M (HP)	SPS/E-BR1201M	SPS/E-BR1201L	SPS/E-BR1201K
Application	Heavy materials	General materials	Light materials	Knitwear	General materials (hole fixing device)	General materials	Knitwear	Light materials
Sewing Scope (X, Y)				X : 40mm, Y	: 30mm (Max)			
Maximum Speed	3200spm	3200spm	2700spm	2700spm	3200spm	2500spm	2200spm	2200spm
Stitch Length				0.05 ~	12.7mm			
Needle	DP×17#19	DP×5#16	DP×5#11	DP×5#11	DP×5#16	DP×5#16	DP×5#11	DP×5#11
Hook		Sta	ndard shuttle h	ook			2 imes rotary hook	(
Height of Presser foot			U	p to 17mm (ste	ep motor is use	d)		
Needle Bar Stroke	41.2mm							
Trimmer	Electronic solenoid type							
Wiper	0							
Lower Thread Counter	0							
Max Speed Limit	Up to 100 \sim 3,200 spm with an external switch							
Feeding System		$R-\theta$ method (step motor is used)						
No. of Stitch Input		Up to 10,000 stitches						
No. of Pattern Input			Up to	o 99 patterns (c	default : 32 patt	erns)		
Scale Scope			2	20~200 % (ad	djustable by 1%)		
Memory Device	P-ROM							
Motor	550W direct drive AC servo motor (standard power: 600 W)							
Power consumption	600VA							
Optimal Temperature	5°C~40°C							
Optimal Humidity	20% ~ 80%							
Power		Single-phase : 100~240V, 3-phase : 200~440V, 50/60Hz						



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

Mark	Description				
Mark	Description The machine delivery shall be conducted by the persons who are knowledgeable about the safety instructions and rules. The following safety rules must be observed: 2.2.1) Manual delivery When the machine is delivered by persons, they shall wear special shoes and tightly hold the machine on the left and right sides. 2.2.2) Forklift delivery 1) A forklift shall be big enough to endure the weight of the sewing machine and carry the machine. 2) Use the palette when lifting the machine. Set the center of gravity of the machine (center of the left and right sides) at the fork arm of the forklift and carefully lift the machine. Image: I				
	Warning Make sure to maintain the balance of the machine when unloading the machine by using a forklift or crane to prevent the deformation of the machine or to prevent people from being exposed to danger. Warning Image: Comparison of the machine when unloading the machine or to prevent people from being exposed to danger.				



2.3) Machine Installation

 Depending on the installation environment, function errors, breakdown, or other pr damage might result. Make sure to meet the following conditions for machine installed in the weight of the machine (see the name plate). 1) The workbench or table where the machine is installed should be durable enough to the weight of the machine (see the name plate). 2) Dust and humidity are the cause of machine pollution and erosion. Please install ar conditioner and conduct regular maintenance of the machine. 3) Install the machine at the place where it is not exposed to direct sunlight (if the maxexposed to direct sunlight for a long time, it may cause discoloration or deformation 4) Secure the space around the machine. Place the machine at least 50cm away from the right, and rear walls to secure sufficient space for maintenance activities. 5) Explosion risk : To prevent possible explosion, immediately stop the machine oper there are inflammable materials in the air. 6) Lighting : The machine does not offer lighting devices. When necessary, install near lighting. 7) Overturn risk : Do not install the machine on the unstable stand or table. If the machine stopped or the external impact is imposed, the machine might be capsized. 	nysical allation: o endure n air chine is n). the left, ation if eded hine enly
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2.4) Machine Operation



2.5) Repair and Maintenance

	When machine repair is needed, it shall be conducted by SunStar A/S engineers only who have finished the due training course.
$\mathbf{\Lambda}$	 For cleaning and repair, cut the main power supply. Wait for 4 minutes before starting maintenance to make the machine completely discharged.
Danger	For main shaft motor and X,Y drive box, it takes 10 minutes before they are completely discharged after the main power is cut.
	 Do not modify the machine specifications or parts without substantial consultations with SunStar. Otherwise, it may threaten safety during machine operation.
	3) Use the parts manufactured by SunStar to repair or replace the machine parts during A/S service.
	4) When repairing is completed, re-install all the removed safety covers.

2.6) Type of Safety Labels

Image: Caution gives and the second secon	Do not operate without finger guard and safety devices. Before threading, changing bobbin and needle, and cleaning, turn off the main switch.
WARNING 경고Image: Constraint of the second	Hazardous voltage will cause injury. Be sure to wait at least 360 seconds before opening this cover after turn off main switch and unplug a power cord.



2.7) Location of Safety Labels



3 Assembly

3.1) Name of Machine Parts

3.1.1) Name of Machine Parts





4

Machine Installation

4.1) Installation Environment

- 1) To prevent accidents stemming from mal-operation, do not use the machine if the voltage is 10% above the rated voltage.
- To prevent accidents stemming from mal-operation, make sure to check if the air pressure is proper before using any air pressure devices such as air cylinder.



To guarantee smooth operation of the product, the installation environment shall be prepared as described in User's Manual. Otherwise, unexpected damage might occur to the product.

- 3) Proper temperature during machine operation : $0^{\circ} \sim 40^{\circ} \text{ C} (32^{\circ} \sim 104^{\circ} \text{ F})$
- 4) Proper temperature during machine storage : $-25^{\circ} \sim 55^{\circ} C (-13^{\circ} \sim 131^{\circ} F)$
- 5) Humidity : Relative humidity within $45 \sim 85\%$

4.2) Electricity Environment



The voltage shall be within 10% of the rated voltage.

- 1) Power voltage
 - The power voltage shall be within 10% of the rated voltage.
 - It is recommended to use the power frequency within +/- 1% of the rated frequency (50/60Hz).
- 2) Noise of electromagnetic wave
 - Do not share the power with the products which have either strong magnetic field or use high frequency. Make the
 machine stay away from the products mentioned above.
- 3) Take care not to spill water and coffee on the machine.
- 4) Do not drop Control Box and the motor to the floor.

4.3) Table Installation

- 1) Table fixing
 - Insert the shock absorbing rubber into the level adjuster and raise it until the caster freely moves.
 - After the table is installed, tighten the nut to fix the level adjuster.
- 2) Table height adjustment
 - Use the bolts attached to the table to adjust the height of the table to make sure that the users can smoothly and conveniently work.





To prevent safety accidents, at least two persons shall be assigned to machine installation or machine delivery.

4.4) Machine Installation

1) Install the waste oil can support, the oil dish, the control box, and the power switch on the table.



 Install the bed cushion rubber and the support rubber for safety switch to prevent the machine vibration and noises from occurring.



 To fix the machine, attach the hinge and the hinge rubber to the bed, and install them on the table by using fixing bolts.





 Since the machine has not been fully assembled, take caution to lean the assembled machine on the floor, and insert and fasten the bolt into the hinge to completely fix the machine to the table.





To prevent safety accidents, at least two persons shall be assigned to machine installation or machine delivery.

5) Install the safety switch and safety switch bracket on the sewing machine, and then adjust the bracket location of the safety switch to make sure that the attached safety switch can properly operate.



6) Complete the cable connection between the machine and the control box, and fix the cables under the table as in the figure (Set the length of the cables when fixing in consideration of the machine's erection).



4.5) How to install the table (BA type)

- 1) Fix the oil container support ①, the oil dish②, and the control box ③ on the table (below).
- 2) Fix the power switch ④ on the table (above).
- 3) Assemble the bed cushion rubber⁽⁵⁾ on the table (below).
- Assemble the safety switch support rubber⁽⁶⁾ on the table (below).



5) Fix the table (above) and (below) as in the figure. (115mm high)



 Assemble the hinge and the hinge rubber on the bed, and insert the adjusting bolt into the hinge hole at ①. Then fasten it on the table (below) as in the figure.







To prevent safety accident, the machine should be carried by at least two people.

 Open the hinge area on the table (above) and erect the sewing machine. Insert the fixing bolt into the hinge hole at ① and fix it on the table.





The machine has not been completely assembled. When erecting the machine, make sure to prevent the occurrence of a safety accident.

8) Assemble the safety switch bracket① on the bed as in the figure. Move the safety switch bracket up or down to adjust the safety switch support rubber② to tightly press the safety switch③, and then fasten the tightening screw④.



9) Complete the cabling connection between the machine and the control box and fix the cables below the table as in the figure. (When the machine should be erected to fix the cables, set the length of the cables considering the machine erection.)



4.6) Accessory Installation

4.6.1) Installation of Motor Cover

Attach the motor cover to the rear side of the machine by using four fixing screws (4EA, small size).



4.6.2) Installation of Safety Plate

Attach the safety plate to the head.





To guarantee safety, make sure to install the safety plate before using the machine.

4.6.3) Installation of Thread Stand

Assemble the thread stand and install it on the table. Make adjustment to properly locate the thread stand.





5 Machine Operation

5.1) Oil Supply

5.1.1) Supplying Location

- In the first operation of the sewing machine, check the remaining volume of oil through the oil window and supply oil if it is found insufficient.



5.1.2) Grease Supply

Administer the original SunStar grease product to the necessary parts.



5.2) Needle

5.2.1) Needle Installation

Loosen the needle fixing screw. With the long groove of the needle headed forward, insert the needle until the upper end of the needle touches the end of the hole, and fix the needle by using the needle fixing screw.



5.3) Thread

5.3.1) Upper and Lower Thread Placement

 Upper thread placement: Place the thread take-up lever at the highest position, and pass the thread through the main and sub thread adjusting devices.



2) Threading

Place the thread take-up lever at the highest position before threading. For heavy materials, conduct threading as in Fig. ①, and for general and light materials and knit, conduct threading as in Fig. ②.

3) Lower Thread Placement

Insert the bobbin into the bobbin case and insert the thread into the thread groove. And then place the needle under the spring of the tension adjusting plate.



1) Heavy Materials

2 General Materials



Insert the bobbin case in the way that the bobbin rotates clockwise when seen from behind.



5.3.2) Bobbin Case Insertion/Removal

Open the hook cover and push the bobbin into the hook by holding the bobbin case handle until you hear some sound.





If the bobbin case and the hook are not accurately assembled, thread might be entangled or the bobbin case might be ejected during machine operation. Make sure that the bobbin case is completely inserted into the hook before operating the machine.

5.3.3) Tension Adjustment

- Adjustment of Upper Thread Tension
 Turn the tension adjusting nuts of the main and sub
 thread adjusting devices clockwise, and the tension
 of the upper thread will grow strong. Otherwise, the
 tension of the upper thread will grow weak.
 Adjust the thread tension in accordance with the
 sewing conditions including sewing materials,
 thread, and number of stitches.
- 2) Adjustment of Thread Take-up Lever Spring Tension Adjust the tension of the thread take-up lever spring by using the bolt on the main thread adjusting device axis. If the bolt is turned clockwise, the thread takeup spring tension will be strengthened. Otherwise, the tension will be weaker. (The standard movement volume is 6-8mm, and the standard tension is 30-50g.)
- Adjustment of Lower Thread Tension
 If the bobbin case tension adjusting screw is turned
 clockwise, the lower thread's tension will grow
 strong. If the bobbin case tension adjusting screw is
 turned counter-clockwise, the lower thread's tension
 will grow weaker.







5.3.4) Lower Thread Winding

- 1) Press "Select" on OP Box and select the bobbin winder.
- Insert the bobbin into the thread winding shaft on the thread winding base, which is attached to the top cover.
- 3) Attach the thread winding lever to the bobbin, and press the pedal to operate the machine.
- After the thread winding lever is separated from the bobbin, use the thread winding blade to cut the thread of the bobbin.

5.3.5) Adjustment of Thread Winder Wheel Location

Adjust the thread winder wheel to be 1mm away from the presser foot drive cam and then fasten the tightening screw after the adjustment is completed.





5.4) Pedal Operation

5.4.1) Pedal Operation

- 1) Install the pedal at the proper and most convenient place for work.
- Press the pedal switch once, and the presser foot descends. When the pedal is released, the presser foot ascends again.
- 3) After pressing the pedal switch twice, the sewing will start. When the sewing is completed, the presser foot will ascend.

5.4.2) HA Type Pedal Operation

1) SPS/E-BR1201HA-20 (all-in-one presser foot operation)

Same to the pedal operation method of the electronic bartack machine type.

SPS/E-BR1201HA-22 (separate-type presser foot operation)
 Use the right model to menage the up or down

Use the right pedal to manage the up or down movement of the right presser foot.

- Adjust the left pedal by step to manage the left presser foot movement and the sewing on/off.
 - Step 1: Adjust the left presser foot's movement
 - Step 2: Start the sewing (Provided that the right presser foot adjustment should be completed)
- 4) Regarding how to change parameter setting of the separate-type pedal, see page 18 of the Electricity and Electronics Manual.







5.5) Pressured Air Infusion and Adjustment of Air Pressure (HA type)



To prevent safety accidents from occurring, make sure that the power is off during this adjustment.

5.5.1) Pipe Connection for Pressured Air

- Connect the quick joint plug which is attached to the table to the quick joint socket where pressured air flows in.
- Open the finger valve to let the pressured air flow in.

[Note]

When the finger valve is closed after use, the remaining air is automatically released, and the remaining air pressure is marked at 0 MPa(0 kgf/cm²).

5.5.2) Adjustment of Air Pressure

Pull up the adjusting knob on the top of the filter regulator and turn it clockwise. Then the air pressure increases, and vice versa. This way, adjust the pressure to the appropriate level at 0.49~0.54 MPa (5~5.5 kgf/cm²) and then return the adjusting knob to the original place.

5.6) Adjustment of Upper Thread Holding Device (Optional)

5.6.1) Adjustment of Upper Thread Holding Device

- Check whether the upper thread holder pin's cylinder knuckle and cap are located in the middle of the upper thread path.
- If not, loosen two fixing screws for the upper holder pin cylinder bracket and make adjustment to make the cylinder knuckle and cap located in the middle. When the adjustment is completed, tightly fasten the fixing screws.
- The standard distance between the end of the knuckle cap and the arm is 4mm.
- To adjust the distance, loosen the two pin cylinder nuts and make the back and front adjustment. When the adjustment is completed, tightly fasten the two nuts.







Maintenance

6.1) Adjustment of Needle Bar Height

Place the needle bar at the lowest position, and loosen the needle bar holder screws. Find an upper punched mark in line with the specification of the needle to be applied and make it touch the bottom of the needle bar bushing. When the adjustment is completed, fasten the tightening screw for the needle bar holder.



6.2) Adjustment of Needle and Hook

6.2.1) Full Rotation (BR type)

Find the proper lower punched mark for the needle applied when the needle bar ascends from the lowest point. Make the lower punched mark meet the bottom of the bushing.



6.2.2) Semi-Rotation (BS type)

- Loosen the shuttle driver screw and open the inner hook presser bar on the left and right side. And then remove the shuttle racing from the shuttle (large).
- Make the hook point of the shuttle meet the center of the needle. Since it prevents the bending of the needle, the front section of the shuttle driver shall touch the needle. Then fasten the fixing screw.
- Loosen the fixing screws for the shuttle (large). And Turn the large hook adjusting shaft right or left and adjust the front and rear position of the shuttle (large) to set the distance between the needle and the shuttle hook point at 0.05~1mm.
- After adjusting the front and rear position of the shuttle (large), set the distance between the needle and the shuttle (large) at 7.5mm by adjusting the rotary direction of the shuttle (large), and then fasten the tightening screw of the large hook.



To prevent safety accidents from occurring, adjust the shuttle (large) and then tightly fasten each tightening screw.





6.3) Adjustment of Lower Shaft Gear and Oscillating Shaft (BS : Semi-rotary)

- Loosen tightening screws (1), (2), and (3).
- Rotate the upper shaft and move the oscillating gear in the arrow direction to find the position where the gear can smoothly operate without any load.
- Attach the oscillating shaft collar (right) to the bed face (A) and fasten the collar screw (2).
- Turn the oscillating shaft collar (right) in the arrow direction, while it is closely attached to the bed face (A), to find the place where the roll driver can smoothly rotate with the backlash of 1mm or below.





If the oscillating gear is not properly positioned, the machine may not operate.
 If the backlash is excessive, the machine might cause increasing noises during operation. If the backlash is too small, the machine might not operate.

6.4) Adjustment of Shuttle Upside Spring Position (BS : Semi-rotary)

- Disassemble the lower feed plate and the needle plate in order to enable the adjustment of the shuttle upside spring.
- Loosen the tightening screw which fixes the shuttle upside spring. Place the upper side of the spring in the middle of the back of the needle and the width as in the figure. And then fasten the shuttle upside spring.





If the area near the shuttle upside spring's groove is scratched or grows rough, it may cause thread break and the separation of thread strands. To prevent it, check the status of the shuttle upside spring.

6.5) Adjustment of Presser Foot Height



After the presser foot height adjustment is completed, tightly fasten each tightening screw. During machine operation, if the presser foot might be loosened, and it may cause damage.

6.5.1) For General, Heavy, Light Materials and Knit

- Loosen the screws⁽²⁾ for the lift lever adjusting plate on the left and right sides of the feed bracket⁽¹⁾, and lift the adjustment plate⁽³⁾ in the A direction. Then, the height of the presser foot⁽⁴⁾ increases. If the adjustment plate is lowered in the B direction, the height of the presser foot⁽⁴⁾ decreases. After adjusting the height of the presser foot⁽⁴⁾, tightly fasten the tightening screws⁽²⁾ for the lift lever adjusting plate.



6.6) Adjustment of Thread Release-related Parts

6.6.1) Thread Release Notch Position Setting

Move the notch to make the tightening screws touch the right side of holes on the notch, and fasten the notch by using the tightening screws.





If the notch is not properly positioned, the remaining thread might be too short or irregular. When the sewing begins, the thread might exit from the needle.

6.6.2) Thread Release Stopper Position Setting

- Disassemble the thread release return spring.
- Loosen the tightening screw for the thread release stopper and adjust the distance between the trimmer driving link and the thread release lever pin at 0.3mm.
- If the thread release stopper is pushed to the right side, the distance between the trimmer driving link and the thread release lever pin grows narrower. If it is pushed to the left side, the distance between them grows wider.
- Install the thread release return spring.



To prevent safety accidents, please use proper tools to disassemble or assemble the thread release return spring.





6.6.3) Adjustment of Thread Guide Disk Opening

- Loosen the tightening screw for the thread release adjustment plate.
- Conduct thread trimming to make the thread guide disk open.
- Adjust the guide disk to be open 0.6~0.8mm for general materials and 0.8~1mm for heavy materials respectively.
 When the angle between the thread release adjustment plates is bigger, the opening of the thread guide disk increases.
 When the angle between the plates is narrower, the opening decreases.
- When the adjustment is completed, fasten the tightening screws.



If the opening is not proper, the remaining thread might be too short or irregular. The thread guide disk might not completely closed.



6.7) Adjustment of Wiper-related Parts

- Loosen the tightening screw2 for the wiper base plate.
- Make the needle vertically aligned with the wiper at the center. Adjust the wiper base plate(3) up or down to set the distance between the needle plate(1) and the wiper to be 14~15mm. When the adjustment is completed, fasten the tightening screw(2).



- Loosen the tightening screw④ for the wiper lot.
- Adjust the wiper connecting lot⁽⁵⁾ up or down to set the distance between the center of the needle and the wiper to be 25mm when the wiper moves at the maximum width. When the adjustment is completed, fasten the tightening screw⁽⁴⁾.





When the wiper is not properly located, the wiper might clash the presser foot or the needle while the wiper is in operation, or the wiper may not accurately operate.

6.8) Adjustment of Trimmer-related Parts

6.8.1) Trimmer Cam Position Setting

Set the distance between the upper shaft collar and the trimmer cam to be 1.7mm. Find the location of the trimmer cam where the carved line of the trimmer cam meets with the punched mark of the upper shaft. When the adjustment is completed, fasten the tightening screw①.



When the trimmer cam is not properly located, the trimmer operation might be faulty or the parts might be stuck with each other.





6.8.2) Adjustment of Link Stopper Screw

- With the needle bar at the lowest position, push the trimmer driving link in the direction of the trimmer cam within the trimmer cam operation zone. And check whether there is space between the trimmer cam roller and the both ends of the trimmer cam.
- With the trimmer cam roller inserted into the operating section of the trimmer cam, adjust the both ends of the link stopper screw to touch A of the trimmer connecting rod, and then fasten the screw.

 If there is not enough space between the trimmer cam roller and the both ends of the trimmer cam, the bad trimming might occur or when the sewing begins or trimming is conducted, parts might get stuck.

2) If the link stopper's screw is not properly located, it may take longer time for the trimmer to return to the original place, and the first stitch might not be in a good condition.



6.8.3) Trimmer Shaft Position Setting

- Loosen the tightening screw for the trimmer driving link and the tightening screw for the trimmer shaft collar.
- Make the cross-section of the trimmer shaft touch the A section of the arm.
- Fasten the tightening screw.





Caution

If the position is not properly set, the trimmer operation might be faulty or the parts might be stuck with each other.

6.8.4) Link Stopper Position Setting

 When the trimmer is not in operation, loosen the tightening screw for the trimmer drive link stopper and set the distance between the trimmer drive link and the trimmer drive link stopper notch to be 0.3mm.





If the position is not properly set, the trimmer operation might be faulty or the parts might be stuck with each other.

6.8.5) Trimmer Solenoid Position Setting

- Loosen the tightening screw for the trimmer solenoid bracket and set the distance between the trimmer shaft and the trimmer solenoid rotary link to be 0.5mm. When the setting is completed, fasten the tightening screw.
- Loosen the tightening screw for the solenoid rotary link and manually move the rotary link of the trimmer solenoid toward the trimmer shaft collar by 6.8mm in the arrow direction. When the setting is completed, fasten the tightening screw.
- When the trimmer solenoid's rotary link returns to the original place, check whether the trimmer shaft collar moves accordingly.



If the position is not properly set, the trimmer's return to the original place might take longer time or the thread release timing might be delayed, deteriorating the sewing condition.



6.8.6) Adjustment of Moving and Fixed Blades

- When the needle bar stops at the upper stop position, adjust the distance(A) between the thread separation point of the moving blade and the needle plate hole to be the figure described in the table by using the adjusting screw.
- Adjust the distance(B) between the fixed blade and the needle plate cover in accordance with the table by using the tightening screw for the fixed blade.
- After the adjustment is completed, check the position of blades by manually operating the trimmer.



If the position setting is not proper, trimmer failure or shorter remaining thread might occur.





6.9) Adjustment of Thread Volume on Bobbin

To adjust the thread volume wound on the bobbin, use the initial position of the thread winder adjusting plate. If lots of thread is wound, loosen the tightening screw on the thread winder adjusting plate and turn it to the A direction. If the thread volume wound on the bobbin is small, turn the screw in the B direction.



 Adjust the thread winder wheel to be 1mm away from the presser foot drive cam and fasten the tightening screw.



6.10) Adjustment of Hand Pulley Device

- 1) Make the hand pulley gear[®] touch the end of the hand pulley shaft, and fasten the tightening screw.
- Secure proper clearance between the gear (A), which is connected to the upper shaft, and the gear (B), which is connected to the hand pulley shaft, and fasten the tightening screw.
- When the roller touches the end of the hand pulley bushing, to reduce the backlash between gear (A) and gear
 (B), make adjustment by moving the bushing left or right.



6.11) Assembly and Adjustment of Direct Drive Motor

6.11.1) Assembly of coupling

- Assembly of Servo Motor Coupling
 When installing the coupling on the servo motor,
 accurately locate the tightening screws for the
 coupling on the connection parts, adjust the distance
 between the coupling and the servo motor to be
 0.7mm, and then fasten the screws.
- Assembly of Coupling on Upper Shaft
 When assembling the coupling to the upper shaft,
 accurately locate the tightening screw for the
 coupling on the upper shaft connection parts, set the
 distance between the bearing o-ring and the coupling
 at 2mm, and fasten the coupling tightening screw.



6.12) X, Y Origin Setting

6.12.1) X Origin Setting

- 1) Disassemble the bed cover(left).
- 2) Move the feed bracket to place the center of the upper feed plate at the center in the X-axis direction.
- 3) Loosen the tightening screw for the X-sensor plate, move the end of the X-sensor plate to the center of the sensor, and then fasten the tightening screw with a driver.







6.12.2) Y Origin Setting

- 1) Disassemble the bed cover(right).
- 2) Set the distance between the Y-feed arm and the bed side at 24mm.
- 3) Move the upper feed plate to the center in the Y-axis direction and make sure to maintain the distance at 24mm.
- 4) Loosen the tightening screw for the Y-sensor plate. Move the end of the Y-sensor plate to the center of the sensor and fasten the tightening screw with a spanner.





6.13) Oil Supply



1) During machine check or maintenance, please observe the safety rules on machine and electricity.

2) Make sure that the power is off before maintenance work begins.

6.13.1) Regular Check List

- 1) For the parts which need regular check, conduct cleaning and lubrication and add grease to maintain high machine performance.
- 2) Test the tension of each driving belt.
- 3) Without regular machine check, the following problems might result:
 - Abnormal abrasion of the moving parts in a wet condition due to the insufficient lubrication and grease injection
 - Abnormal operation due to dust or foreign materials gathered at the moving parts



If machine damage or mal-operation occurs due to the failure to clean and lubricate the machine through regular checking, SunStar will not be held liable.
 A diruct the cleaning cycle depending on the use conditions and environment.

2) Adjust the cleaning cycle depending on the use conditions and environment.

6.13.2) Oil Supply

1) Type of Lubricant

No.	Type of Lubricant	Parts Applied
1	S/M oil	Arm, Bed, Hook
2	Silicon oil	Silicon oil supply tank
3	Grease	Presser Plate

6.13.3) Oil Supply Method

- 1) Arm
 - Check the remaining oil volume at the oil tank installed at the arm before supplying oil.
 - Fill up the oil tank through the oil outlet at the upper arm.



2) Bed

 Remove the rubber cap from the oil outlet on the table and supply oil. When the oil supply is completed, put back the rubber cap to close the outlet.



- 3) Hook
 - Remove the bobbin case and administer oil around the hook to the extent that the area becomes wet with oil.





- 4) Silicon Oil Tank
 - Supply silicon oil to the silicon oil tank installed on the right side of the arm.



6.13.4) Grease Lubrication

- 1) Turn off the machine power.
- 2) Loosen the screws.
- 3) Lubricate grease on the parts marked with arrows.
- 4) Assemble the screw.
- 5) Wipe out the running grease.
- 6) Turn on the power again for sewing.



6.14) Cleaning

6.14.1) Cleaning Cycle and Method



Make sure to turn "off" the machine power before conducting cleaning.
 Assemble the parts which are disassembled for cleaning.

No.	Cleaning Area	Cleaning Frequency
1	Around hook	Everyday
2	Thread take-up lever / Thread tension adjusting device	Once a week
3	Around the moving and fixed blades. Use air to clean the moving and fixed blades under the needle plate.	Three times a week

6.15) Handling of Waste Oil

When the waste oil can attached to the rear side of the table is filled to the full, separate and empty the can.





When separating the waste oil can, take caution not to drop it to the floor.
 Just in case for dropping the waste oil can to the floor, place cloth, paper or oil dish on the floorwhen separating the waste oil can.



Troubleshooting

7.1) Machine Part

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No.	Trouble	Cause	Corrective Action
	Faulty machine operation	Excessive relaxation of the belt tension or the damage to the belt	Adjust the belt tension and replace the belt
1		Power cutoff or the cut of the circuit fuse	Check whether the main shaft motor drive fuse is cut and replace it if so.
		Separation of feed bracket from X or Y limit	Properly place the feed bracket at the normal position (within the scope of the limit switch)
2	Improper stop position	Loose main driving belt	Adjust the belt tension
2		Wrong synchro location	Adjust the synchro location
		Damage to needle (crooked needle, scratch on needle hole or groove, abrasion or deformation of the needle tip)	Replace the needle
3	Needle break	Wrong needle installed	Replace the current needle with proper one
		Contact between needle and hook	Adjust the distance between needle and hook properly
	Thread break	Wrong thread placement	
		Wrong needle installation (needle height, needle direction, etc.)	Insert the needle again
4		Damaged needle (crooked needle, scratch on needle hole or groove, abrasion or deformation of the needle tip)	Replace the needle
		Too strong upper and lower thread tension	Adjust the tension
		Excessive thread take-up lever spring tension and moving scope	Adjust the thread take-up lever spring tension and moving scope
		Crooked needle	Replace the needle
5		Improper needle for thread used	Replace the needle
		Bad needle fitting condition	Refit the needle
	Stitch skip	Improper needle and timing	Adjust the needle and shuttle points
		Improper groove, and wide gap between shuttle points	Adjust the needle and shuttle points
		Excessive thread take-up lever spring tension and moving scope	Adjust the thread take-up lever spring tension and moving scope

No.	Trouble	Cause	Corrective Action
6	Bad thread tightening condition	Weak upper thread tension	Adjust the upper thread tension
		Weak lower thread tension	Adjust the lower thread tension
		Improper needle and shuttle timing	Adjust the needle and shuttle timing
7	Missing thread trimming	Loose crossing tension between moving and fixed blades	Adjust the tension of the fixed blade
		Scratch or abrasion on the moving and fixed blades	Replace the moving and fixed blades
		Wrong trimmer cam location	Readjust the location of the trimmer cam