OHTAKE

Japan Quality since1968

Automatic Screw Feeder
自動ネジ供給機

NSR Series
Operation Manual (Maintenance)

Read these instructions for the proper use of this machine.
After having read these instructions,
keep them in a convenient place so you
or the operator can refer to them whenever necessary.

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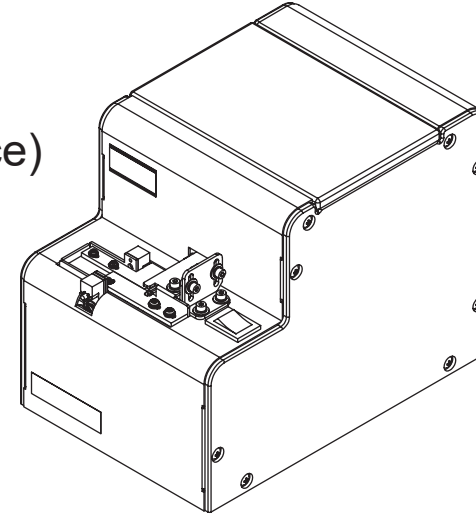


NSR1MAE02cM

Contents

1. OVERVIEW OF THIS MACHINE

Thank you very much for selecting our Automatic Screw Feeder "NSR series ".
This machine can line up screws (Type M1 - M3) and supplies them one by one to an automatic machine to help streamline screw tightening.
Different sizes of screws can be used by changing the rail, escaper and passage plate.
It can be used wherever there is a power source for an AC adapter.

2. BEFORE USE

Please check for the following accessories before operating the machine.

- ＊ Instruction Manual 1 copy
- ＊ Hexagonal Wrench 1 piece
- ＊ Ground wire 1 piece
- ＊ AC Adapter 1 unit
- ＊ Screwdriver 1 piece

＊ The design, performance and specifications are subject to change without prior notice for the sake of improvement.

3. OPERATING PRECAUTIONS

This manual contains safety alert symbols and signal words to help prevent injuries to the user or damage to property.

◎ Indications

⚠ WARNING	This indicates there is a chance of death, serious injury or fire if the instructions are not followed.
⚠ CAUTION	This indicates there is a chance of personal injury or damage to property if the instructions are not followed.

◎ Symbols indicating type of danger and preventative measures

- Prohibited operation. Never do this!
- Do not disassemble, modify or repair.
- Do not touch with wet hands.

- This indicates to stop operations.
- Unplug power supply from wall outlet.
- General caution.

Attach the ground wire by loosening the screw near the mark ⏚ of the equipment.

the bottom of the main body

⚠ WARNING

Do not disassemble the AC adapter as there is a risk of electric shock, fire or malfunction.

Do not damage, alter or change the power cord. Do not place heavy objects on the cord.
Do not pull hard on the cord or twist the cord as it could be damaged, thereby causing a risk of fire or electric shock.

Do not handle the AC adapter with wet hands as it could cause an electric shock.

When using an outlet with AC100 ～ 240V, don't overload the electrical circuit.
Do not modify or remodel this machine as this may cause a fire or electric shock.

Do not operate this machine near flammable liquids, gasses or materials as there could be a risk of fire or explosion.

Stop operating the machine and unplug the AC adapter from the wall outlet when you detect overheating, smoke, a pungent odor or any other unusual condition, as there may be a risk of fire or electric shock. Contact the dealer, from which you purchased the machine, and have it examined and repaired.

In the case of a thunderstorm, stop operating the machine, turn off the power and unplug the AC adapter from the wall outlet. If there is lightning and thunder nearby, move away from the machine and do not touch it or the AC adapter.
After the thunder stops, and when it is safe to do do so, check the machine. If there is any abnormality, contact your dealer.

When performing maintenance, changing parts or when you sense an abnormality in the machine, turn the power off and pull the AC adapter from the wall outlet.
In addition, there are parts that become hot in the circuit board. When performing maintenance around the circuit board, turn off the power for at least 5 minutes before performing work. There is a risk of burns.

⚠ CAUTION

Use only the AC adpater supplied with this machine otherwise it may result in a fire or electric shock.

Do not install this machine in an unstable location otherwise it may fall causing damage or injury.

Always operate the machine with the upper cover in place, otherwise it may result in injury.

Do not allow any foreign material to enter the machine while in operation.
Do not put your fingers into the machine while in operation, otherwise an injury will result.

Do not operate this machine in overly humid or dusty conditions.
Keep the socket plug clean at all times otherwise it may cause a fire or electric shock.

When moving the machine, always disconnect the AC adapter from the wall outlet or it may result in damage to the cord, or cause a fire or electric shock.

Turn off the machine and unplug the AC adapter from the wall outlet during closing hours or if the machine will be unused for any extended period of time.

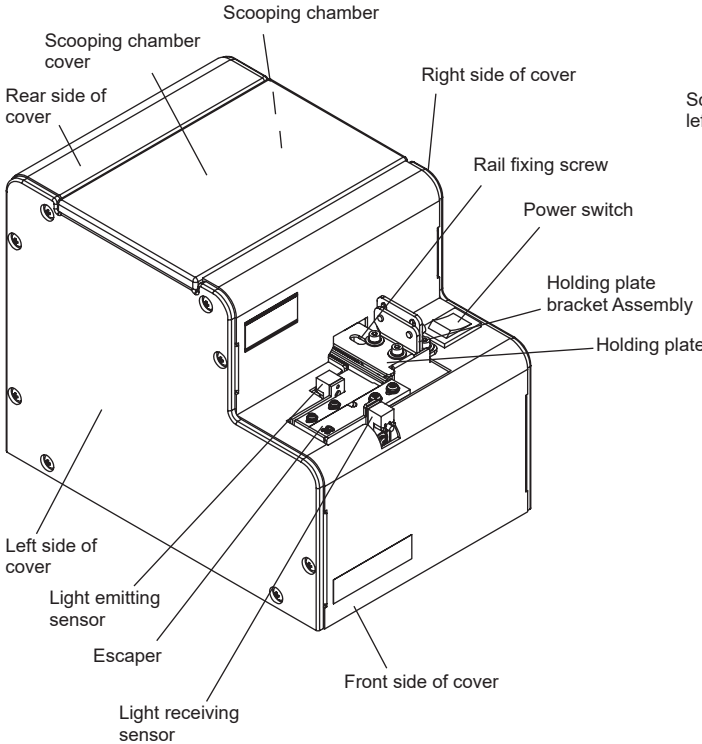
When moving the machine, be sure to hold it with both hands and be careful not to drop it.
Dropping the machine at your feet may cause injury.

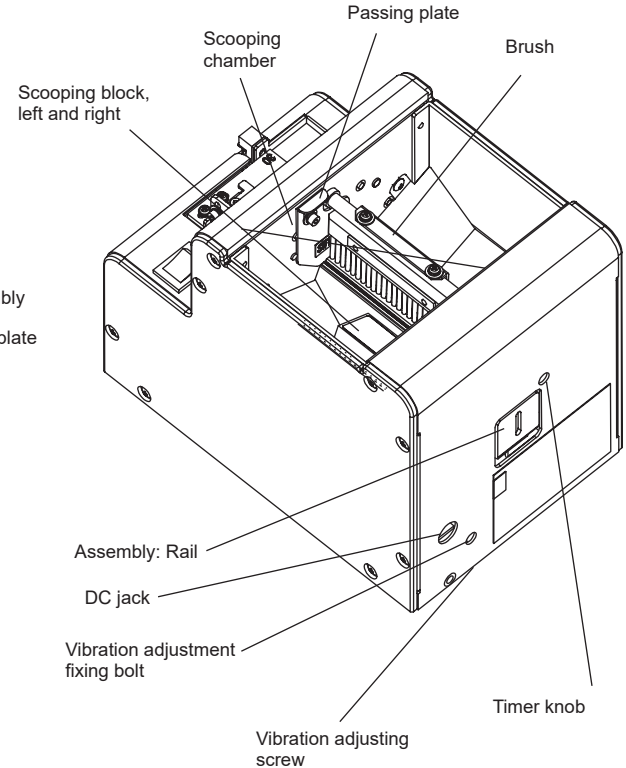
Do not operate the machine with tension on the AC adapter cord.
Keep the cord loose and untangled.

Do not bend, alter or damage the rail. Do not apply any oil. It is recommended that the user clean the rail periodically.

Do not use any screw that is out of the specified range nor any screw that is oily or dirty.

4. Names of Machine Parts





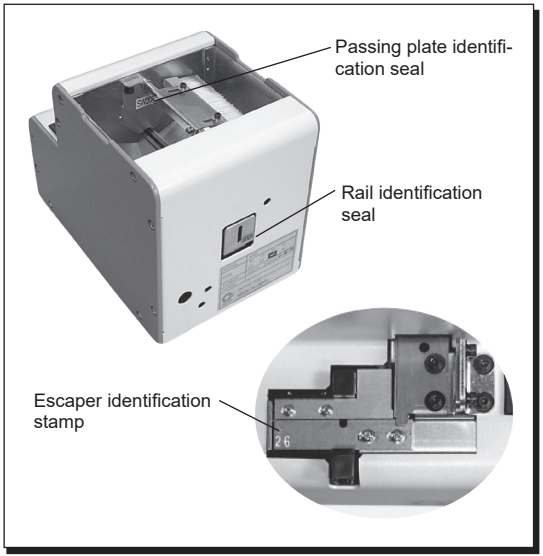
5. Checking and Adjustment before Operating the Machine

5.1 Checking the Main Body Model

Check if the nominal diameter of the screws to be loaded matches the main body model, and then use the machine.

Check the rail model No., escaper model No., and passing plate model No. by referring to the following table.

Screw feeder series	Screw feeder model	Screw size	Exchange kit No.	Rail model No.	Escaper model No.	Passing plate model No.
NSR	NSR10	φ 1.0	SRR10SET	SRR10	SE10	SW1017
	NSR12	φ 1.2	SRR12SET	SRR12	SE12	
	NSR14	φ 1.4	SRR14SET	SRR14	SE14	
	NSR17	φ 1.7	SRR17SET	SRR17	SE17	
	NSR20	φ 2.0	SRR20SET	SRR20	SE20	SW2030
	NSR23	φ 2.3	SRR23SET	SRR23	SE23	
	NSR26	φ 2.6	SRR26SET	SRR26	SE26	
	NSR30	φ 3.0	SRR30SET	SRR30	SE30	



Note: Screws, with a different nominal diameter, can be used by replacing the rail, escaper, passing plate and the robot escaper guide for the robot.
The parts, for replacement, are available separately.

Before delivery, each section of the machine is checked and adjusted with the pan head screws matching the ordered model. Most screws may be usable in the initial status of adjustment.

However, if the height or shape of screw head is different or if the operation is regarded as abnormal, each section must be readjusted. In this case, make the following checks and adjustments:

○Checking the screw load amount ○Checking and adjusting the brush ○Checking and adjusting the passing plate
○Checking and adjusting the rail vibration ○Checking and adjusting the holdiing plate
○Checking and adjusting the front and rear sides of the rail ○Checking and adjusting the timer.

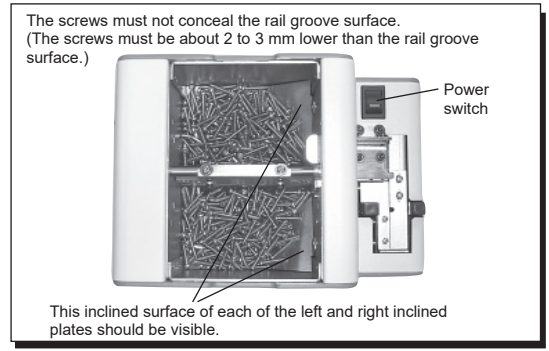
If the rail, escaper, and passing plate of the machine are replaced, screws with a different nominal diameter are usable.

After these parts are replaced, a fine adjustment is required. The respective adjusting procedures will be described in other paragraphs. Please read these paragraphs.

5.2 Screw Load Amount

An excessive screw load amount will have an adverse effect on the screw alignment and transport. The figure shown at right, roughly indicates the maximum screw load amount. Load the screws referring to it.

- Turn on and off the power switch so that the scooping block may be at the lower limit position.
- Load screws up to an approximately 2 to 3 mm lower position than the rail groove surface.
- At this time, check that the front inclined surface of the inclined plate is not concealed by the loaded screws.
- Be sure to determine a proper screw load amount by observing the machine operation while the machine is in operation.

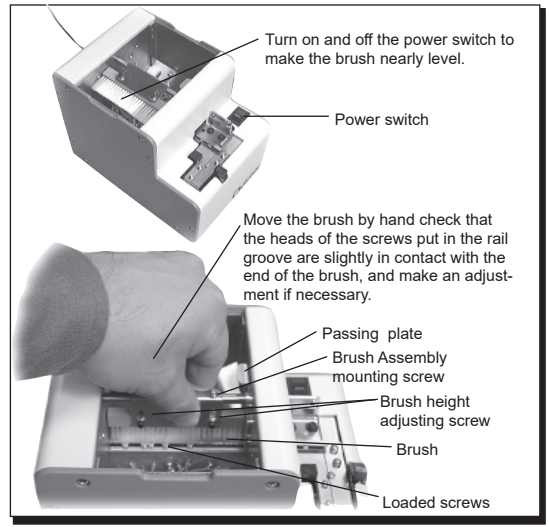


5.3 Checking and Adjusting the Brush

⚠CAUTION Turn off the power supply before starting checking and adjusting.

Put the screws to be loaded into the scooping chamber, turn on and off the power switch, and put the screws to be loaded into the rail groove.

- Turn on and off the power switch to make the brush nearly level as shown in the figure at right.
- Check that the heads of the screws to be loaded are in slight contact with the end of the brush.
- When the brush height is too low or high, this will have an adverse effect on the screw alignment and transport.
- If any adjustment is needed, loosen the brush height adjusting screw to adjust the brush height.
- If the front side of the brush plastic portion comes into contact with the passing plate, loosen the brush Assembly mounting screw and make an backward/forward adjustment.
- Operate the machine body to check that the brush operation is normal.

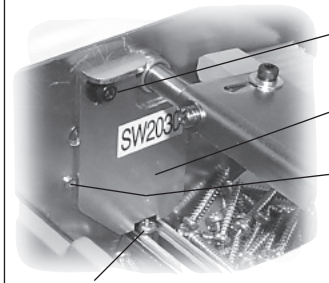


5.4 Checking and Adjusting the Passing Plate

⚠CAUTION Turn off the power switch before starting checking and adjustment.

- Check that the passing plate is adjusted to a height that permits screws to be loaded to pass just within the limit.
- When the passing plate is too low, screws cannot pass. When the passing plate is too high, these screws are easily caught by it.
- When an adjustment is required, loosen the passing plate mounting screws and adjust the height.
- After making an adjustment, make an operational check.

Note: Using the half-presses on both sides of the passing plate as guides, slide the passing plate up and down.



The height shall permit loaded screws to pass the passing plate just within the limit.

5.5 Checking and Adjusting the Rail Vibration

In this machine, the rail vibration can be adjusted.

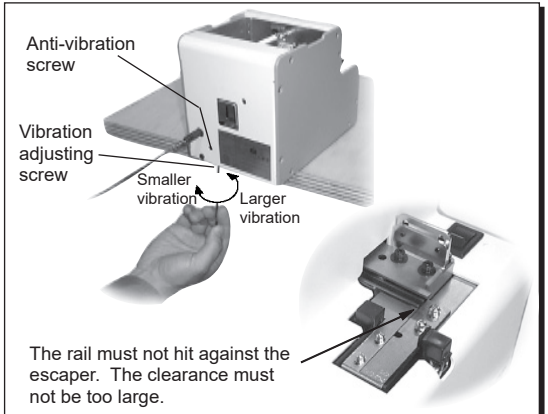
The screw transport speed differs depending on each screw type. Check the screw transport speed. If the rail vibration constitutes a hindrance as a matter of use, it can be adjusted.

- Loosen the anti-vibration screw in the rear part of the machine and turn the vibration adjusting screw on the bottom surface of the machine to adjust the vibration.

  When this screw is turned clockwise as viewed from the bottom surface, the vibration will increase.

  When the screw is turned counterclockwise, the vibration will decrease.
- If the vibration is adjusted to a too large value to increase the transport speed, the rail will hit against the escaper and screws may fall down into the machine from the clearance, failing to unload screws normally. Adjust the vibration to a proper value that matches the loaded screws.

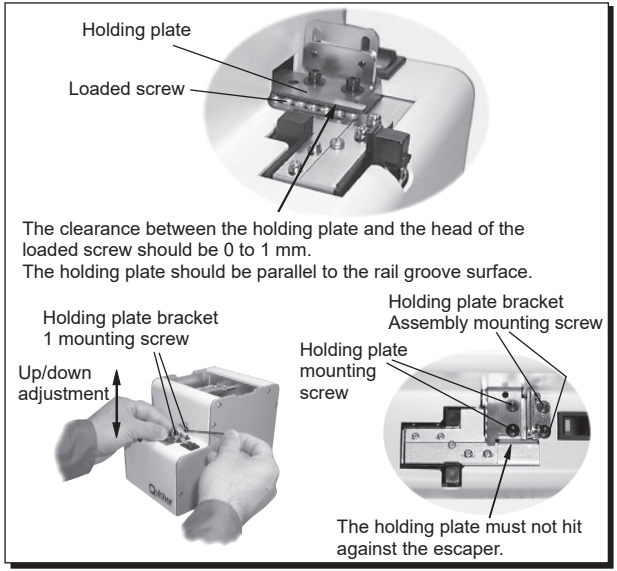
  (Related item: Checking and adjusting the front and rear positions of the rail)
- After making an adjustment, be sure to tighten the anti-vibration screw.
- After making an adjustment, make an operational check.



5.6 Checking and Adjusting the Holding Plate

Check the holding plate position.

- Check that the clearance between the head of the loaded screw put in the rail groove and the holding plate is about 0 to 1 mm.
- If there is no clearance, a screw will be caught. If the clearance is too large, a screw pileup or screw jump will take place.
- If any adjustment is required, loosen the clamp plate bracket 1 mounting screw and make an up/down adjustment.
- If the holding plate hits against the escaper, a hindrance is caused to the escaper motion. In this case, make a readjustment so that the holding plate may not hit against the escaper or loosen the holding plate bracket Assembly mounting screw or holding plate mounting screw, and make a backward/forward adjustment.
- After making an adjustment, check the machine operation.



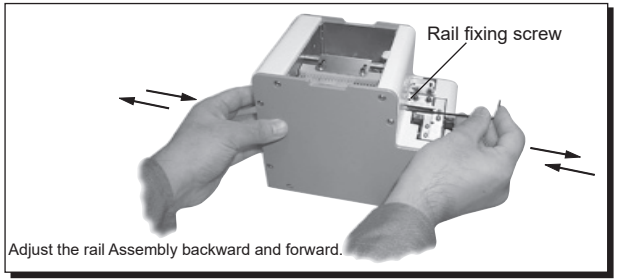
5.7 Checking and Adjusting the Front/Rear Position of the Rail

If the rail hits against the escaper or the clearance between the rail and the escaper is too large when the machine is operated, loosen the rail fixing screw and adjust the rail Assembly backward or forward. After making an adjustment, be sure to tighten the rail fixing screw.

If the rail hits against the escaper, the escaper cannot be normally operated.

If the clearance between the rail and escaper is too large, screws may fall down into the machine.

After making an adjustment, try to make a vibration readjustment by referring to "Checking and Adjusting the Rail Vibration".



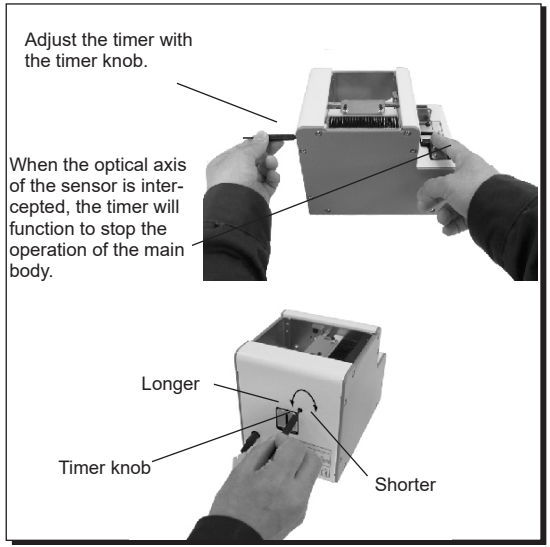
5.8 Checking and Adjusting the Timer

The screw transport speed differs depending on each screw type.

This machine can make screw unloading smooth through timer adjustment. For screws with a low transport speed, set the timer long. For screws with a high transport speed, set the timer short.

- This machine continues its operation when no screw is found at the screw unloading position, and holds a screw at the screw unloading position, and stops its operation after the lapse of a certain time. When the screw at the screw unloading position is taken out, the machine restarts its operation. This time can be varied by adjusting the timer.
- Check the operation by intercepting the optical axis of the sensor.
- Make an adjustment with the timer knob at the rear of the machine body as shown in the figure at right.
- When the timer knob is turned clockwise as viewed from the rear side, the time becomes shorter.

  When this knob is turned counterclockwise, the time becomes longer.
- Make this adjustment within the allowable turning range without giving excessive force.
- Make an operational check by using loaded screws and set the timer properly.



6. Operation

○ Loading the screws

- Open the upper cover.
- When the chamber plates are at their lowest position, load screws up to 2 - 3mm below the rail groove surface.
- Check that the screws are not loaded so as to cover the upper portion of the inclined plates.

  [CAUTION] Do not overload the chamber with screws otherwise it may cause a malfunction or damage the machine.

○ Turning ON the power

- Plug the attached AC adapter into the main body and power outlet.
- When the power switch is turned ON, the power switch lamp lights up.

  The scooping block starts to move up and down. The rail starts to vibrate and the escaper moves from side to side.
- Screws move along the rail towards the slideing escaper which selects one screw at a time.
- The escaper slides and deposits the selected screw at the pick up site.
- At this time, the sensor detects the screw and the escaper stops, and the feeder stops after the timer set time.
- Until a screw is picked up, the machine stops operating.
- When a screw is picked up, the sensor detects this and the machine resumes operation.

7. Replacing and Adjusting Parts

The brush, main motor, and escaper motor are consumables. The replacement rail, passing plate required after a change of nominal diameter of loaded screw, rail, and escaper must be ordered separately. The replacing and adjusting procedures are described below.

When replacing parts after changing the nominal diameter, especially, a fine adjustment is required. Make this fine adjustment by reading the corresponding contents carefully.

Take out all the loaded screws put in the main body before starting the parts replacement work.

7.1 Replacing and Adjusting the Brush

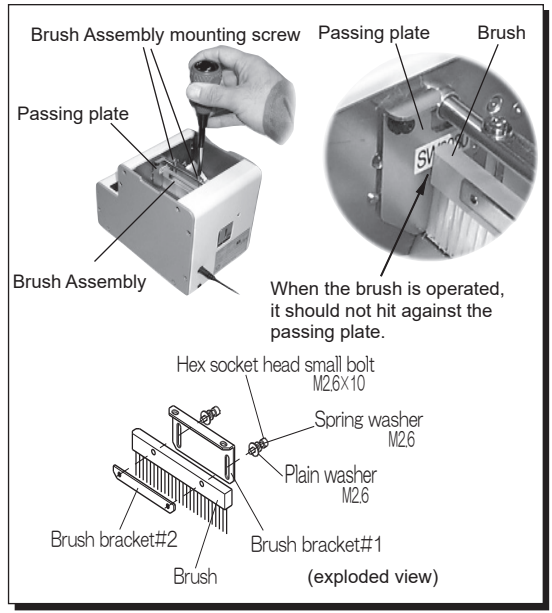
⚠CAUTION Turn off the power switch before starting replacement and adjustment.

If the end of the brush is too worn out to sweep out the screws of abnormal posture, replace the brush with a new one.

A more bristly brush than the standard brush is available as an option. Make use of it when necessary.

- Turn on and off the power switch of the main body. Set the brush at the position shown in the figure at right and detach the brush Assembly.
  (Set the brush Assembly mounting screw to an easy-to-detach position.)
- The brush Assembly can be disassembled as shown in the figure at right.
- For assembly, reverse the disassembling procedure.
- After completion of assembly, check that when the brush Assembly is operated, the front side of the brush plastic portion may not hit against the passing plate. The ideal clearance is zero.
- For adjustment, refer to "Checking and Adjusting before Operating the Machine".

  Part number of brush assembly:
  - NSB 02053 #01 (standard part)
  - NSB 02053 #02 (option: a more bristly brush)



7.2 Replacing the Main Motor

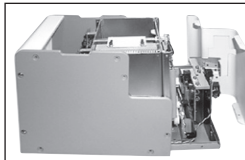
CAUTION Turn off the power switch before starting to replace and adjust the main motor.

When the motor is damaged, please replace it with a new one.

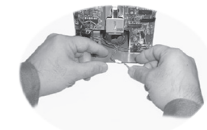
- Remove the cover from the main body.
  (In the case of the front cover with the power switch, disconnect the connector of the power switch and then detach this front cover from the main body.)
- Disconnect the motor junction connector.
- Remove the motor mounting screws on the bottom of the main body.
- Pull out the motor from the rear side of the main body.
  (At this time, if the motor is hard to pull out, insert a hexagonal wrench key into the oblong hole of the main body base and push the motor mounting bracket backward.)
- For assembly into the main body, reverse the disassembling procedure.
  However, the relation with the operation timing is shown on the next page.

Note: To avoid wire breakage, do not use excessive force with the motor wiring.

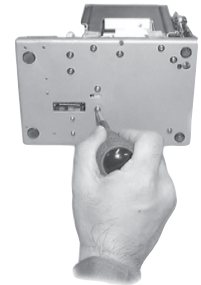
Welding: Part No. of main motor unit NSB 03056



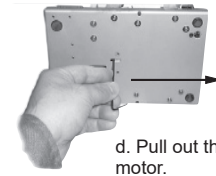
a. Remove the cover.



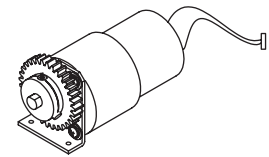
b. Disconnect the junction connector.



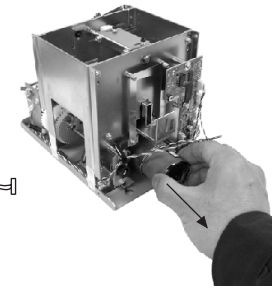
c. Remove the motor bracket mounting screws.



d. Pull out the motor.



Main motor unit



Operation Timing in Replacing the Main Motor

CAUTION Turn off the power switch before starting to replace and adjust the main motor.

- To adjust the scooping block to the brush in respect of operation timing, it is necessary to adjust the gear engagement.
- When the motor has been removed from the main body, adjust the gear engagement of the motor as shown in the figure at right, and the operation timing can be adjusted.
- When it is hard to engage the driving gear of the motor with the driven gear, remove the escaper Assembly mounting screws and put it on the left side.

  After that, when the installed driving shaft bracket (right) is loosened, this will facilitate the assembly work. (Refer to the figure at right.)

  After installing the motor, be sure to tighten the loosened screws once again. Readjust the escaper Assembly.
- After installing the motor, energize the motor and check the operation timing.

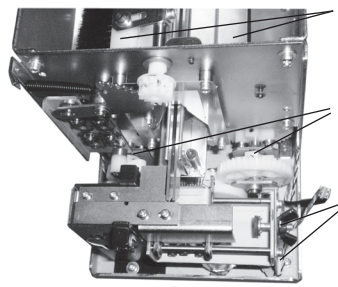
  (Check that both left and right scooping blocks can be operated almost simultaneously.)
- After making an operation check, return the wire arrangement to its original status.

  When installing the cover, take care not to cause the wire to be caught.

  Give consideration so that the wiring may not be a hindrance to the operation of this machine.

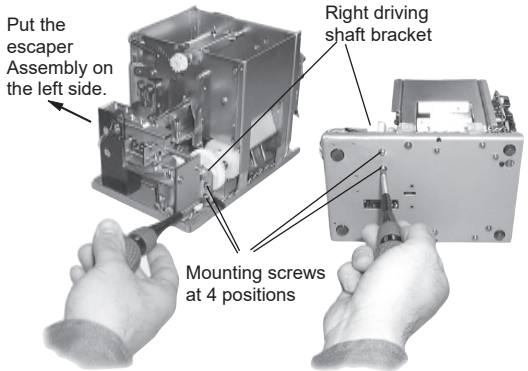
  The wiring should not be a hindrance when adjustments are made from the outside.

Note: To avoid wire breakage, do not use excessive force with the motor wiring.



In the status where the left and right scooping blocks are at the lowest position, install the motor.

If it is hard to obtain proper gear engagement, loosen only the right driving shaft bracket.



7.3 Replacing the Escaper Motor

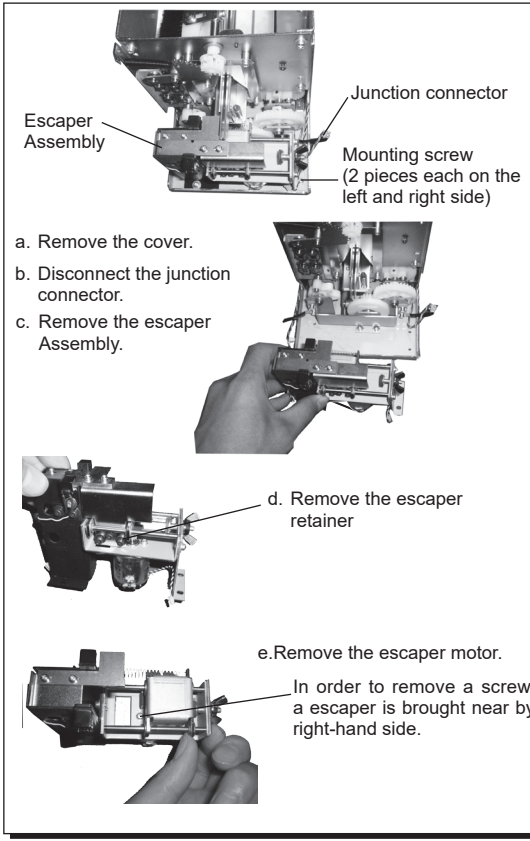
CAUTION Turn off the power switch before starting to replace and adjust the escaper motor.

When the motor is damaged, replace it with a new one.

- Remove the cover from the main body.
  (In the case of the front cover with power switch, remove the connector of the power switch and detach it from the main body.)
- Disconnect the motor junction connector.
- Remove the 4 escaper Assembly mounting screws and detach the escaper Assembly from the main body.
- Remove three escaper mounting screws, and remove the escaper retainer.
- Remove two escaper motor mounting screws. The escaper is moved to right-hand side, and a left-hand side screw removes it.
- Attach a new escaper motor. Backlash is adjusted and it fixes so that the escaper may return smoothly by means of a spring.
- For assembly into the main body, reverse the disassembling procedure. At installation, the escaper must be adjusted.
- After making an operation check, return the wire arrangement into its original status. When installing the cover, take care not to cause the wire to be caught by it. Give consideration so that the wiring may not be a hindrance to the operation of this machine.

Note: To avoid wire breakage, do not use excessive force with the motor wiring.

Welding: Part No. of escaper motor NSR 08629



7.4 Replacing the Rail Assembly

CAUTION Turn off the power supply before starting to replace and adjust the rail Assembly.

The rail Assembly of this machine can be easily replaced.

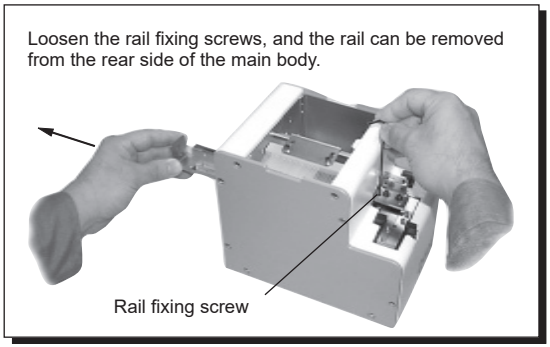
When there is any dirt or a flaw on the rail groove that may constitute a hindrance to the operation, we recommend the user to replace the rail.

When using screws with a different nominal diameter, replace the rail Assembly as well as the escaper and passing window as a means.

Before replacement and adjustment, take out the loaded screws in the machine.

Loosen the rail fixing screws and pull out the rail Assembly from the rear side of this machine.

After replacing the rail, each portion must be adjusted.



7.5 Replacing the Passing Plate

CAUTION Turn off the power supply before starting to replace and adjust the passing plate.

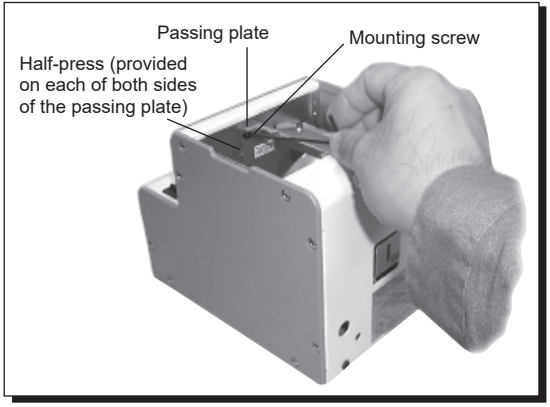
For using screws with a different nominal diameter, replace the passing plate as well as the rail and escaper as a means.

Remove the passing plate mounting screws, then remove the passing plate.

Take care not to loosen the mounting screws.

At installation, use the half-press on each of both sides of the passing plate as a guide.

After replacement, it is necessary to make an adjustment in accordance with loaded screws.



7.6 Replacing and Adjusting the Escaper

⚠CAUTION Turn off the power supply before starting to replace and adjust the escaper.

For using screws with a different nominal diameter, replace the escaper as well as the rail and passing plate as a means.

Replace and adjust the escaper after removing the cover.

Replace the escaper after removing the escaper mounting screws.

After replacement, be sure to adjust and check the parts related to the escaper.

Adjust the escaper on the basis of the rail.

In the direction of height, the rail groove surface should be lower than the escaper surface and counter-screw surface should be lower than the escaper surface.

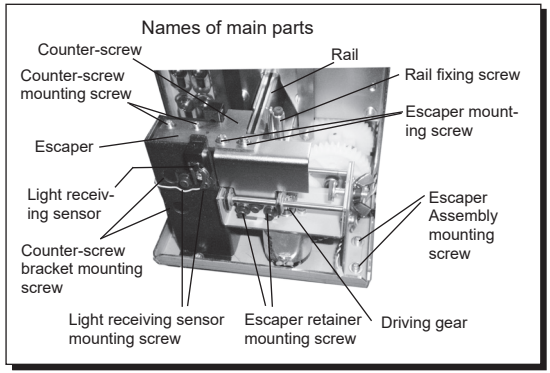
In the direction of width, the rail groove should be adjusted to the escaper groove in operation and also the rail side surface should not make contact with the counter-screw end surface.

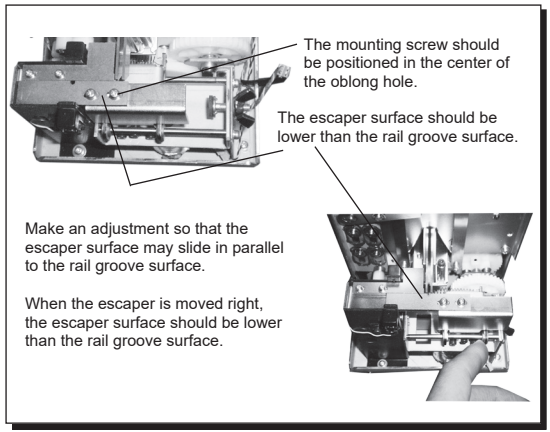
In addition, adjust the sensor level in the status where no screws are loaded.

① **Adjust the height of the escaper surface.**

Install the escaper. At this time, the mounting screw should be positioned in the center of the oblong hole.

Adjust the height of the escaper retainer so that the escaper surface may be equal to or a little lower than to the rail groove surface. At this time, move the escaper to right so that the escaper surface may slide in parallel to the rail groove surface.



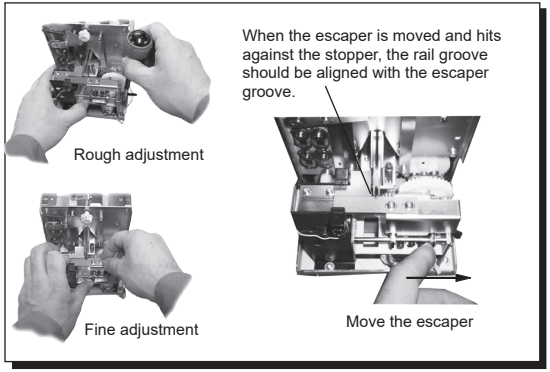


② **Adjust the escaper groove position.**

Adjust the escaper groove position so that when the escaper is moved to the right side until it hits against the stopper, the rail groove may be aligned with the escaper groove.

For a rough adjustment, loosen the 2 escaper Assembly mounting screws on each of both left and right sides. For a fine adjustment, loosen the 2 escaper mounting screws.

After completion of the above adjustments, move the escaper to the right side until it hits against the stopper and check the groove position once again.

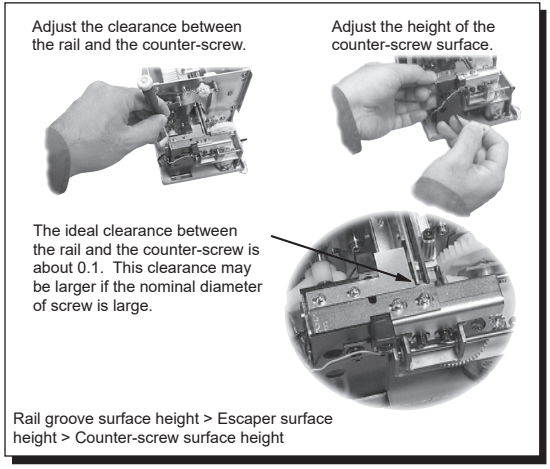


③ **Adjust the counter-screw surface position**

Loosen the counter-screw mounting screws and adjust the clearance between the rail side surface and the counter-screw end face. This clearance should be such that does not cause a collision when the rail is vibrated.

Loosen the counter-screw bracket mounting screws and adjust the height of the counter-screw surface.

This height should be equal to or a little lower than to the escaper surface.



④ **Adjust the sensor voltage level.**

Adjust the sensor voltage level for the case where no loaded screws are in the escaper unloading section.

Remove the machine body rear cover, and measure the voltage level. Confirm using the test hole on the board. Connect the negative terminal of the tester to SG and the positive terminal to T3.

Be sure to ground the metal portion of the main body.

Adjust the sensor voltage level to 0.25 V to 1.5 V in the status where no loaded screws are in the escaper unloading section.

Note: When no loaded screws are: 0.25 V to 1.5 V
When loaded screws are: 3.5 V or more
Electrically, it is judged by using 2.5 V as a boundary whether loaded with screws or not.

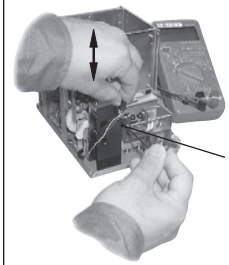
After checking and adjusting each portion, make an operational check of the machine actually with loaded screws.

If any abnormality is found, make the said adjustment once again in addition to the rail vibration and front/rear position adjustments.

After completion of the operational check, return the wiring arrangement to its original status.

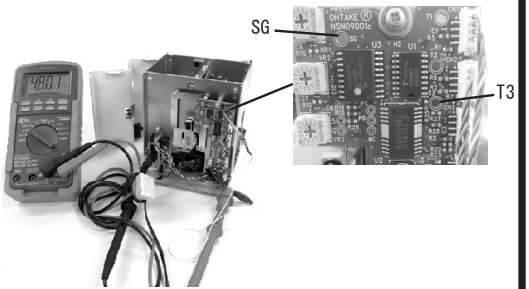
When installing the cover, take care not to cause the wire to be caught by it.

Give consideration so that the wiring may not be a hindrance to the operation of this machine.



When there are no loaded screws, the voltage value should be 0.25 V to 1.5 V.

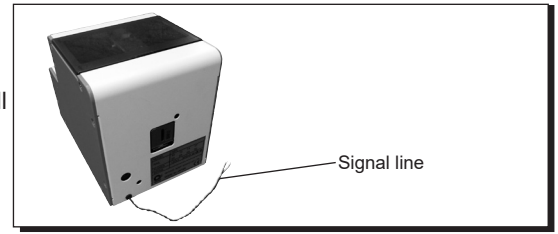
Loosen the light receiving sensor mounting screw (at 2 positions) and adjust the light receiving sensor up and down.



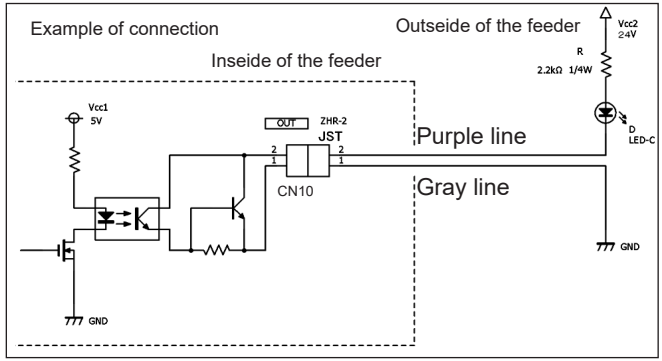
8. Application with Robotic System

8-1. External output signals

The wires coming out from the back of the machine serves as the detection of presence of screws on the rotational escaper, which shall be used with automatic assembly machines or external screw counters.



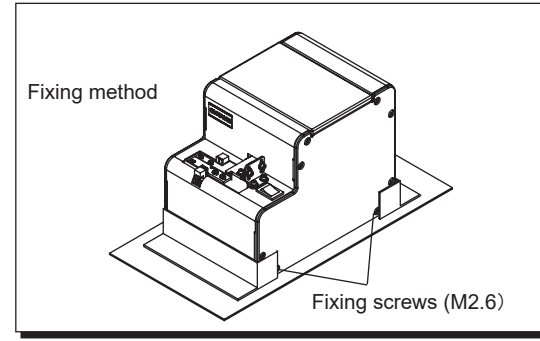
[Function]: Screw present: signal high (ON)
Incoming current: shall be limited to less than 100mA
**CAUTION: Additional resistor is required on external circuit for regulating current **
[Capacity]: Max DC current: 100mA
External supply voltage: 5 ~24VDC (Max: 27VDC)
[caution]: Please keep the length of output signal wire less than 3m;
* The purple wire functions as signal output high (Collector end), with the gray wire as common (Emitter end)



Purple line--->Signal line (OFF when no screw is present)
(On when a screw is present)
Gray line --->Common line

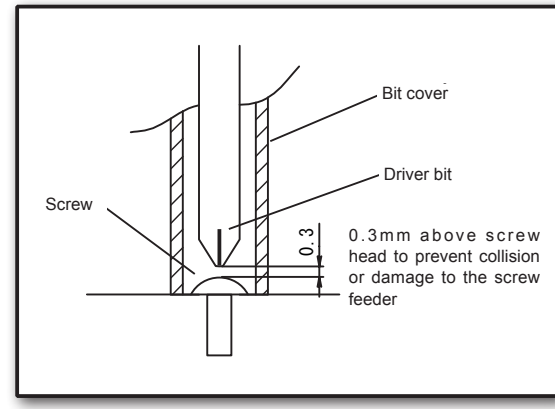
8-2. Installation with Robotic System

When installed with a robotic assembly, the screw feeder shall be fastened by lower edges of the cover. (Please refer to diagram on the right side) Fastening screws on bottom edge of the cover can be used for this purpose as well.
In addition, if the rubber supports shall be replaced with fastening assemblies by the user, please keep length of the screws less than 5mm going inside the machine, in order to prevent damage to internal mechanism of the screw feeder.



8-3. Robotic Operations

When the screw feeder is used with an automatic assembly system, in order to avoid contacts between screw driver and screw feeder , please set the lowest point of the bit at least 0.3mm above the screw, so that contact or collision of the driver bit and screw feeder can be avoided.



9. Miscellaneous

9.1 Overload Protective Circuit

This machine is provided with an overload protective circuit.

Usually, the driving motor rotates forward (normal rotation) to feed loaded screws to the escaper continuously, thus picking up screws one after another. However, if an overload is applied to the driving section, the driving motor rotates backward for a certain time and then returns to the normal rotation. When the cause of the overload is removed at the reverse rotation, the driving motor returns to the ordinary normal rotation and can pick up screws.

If the cause of the overload is not removed during the reverse rotation, the driving motor repeats the sequence of reverse rotation - normal rotation - reverse rotation - normal rotation for a certain time to shut off the power to the driving motor. At this time, the escaper operation is not stopped.

When the power to the driving motor is shut off, turn off the power switch and remove the cause of the overload. For example, when too many screws are put into the scooping chamber, reduce the quantity of loaded screws to a proper level. If any screw is caught by the driving section, remove it.

After removing the cause of the overload, turn on the power switch to operate this machine. (Power reset)

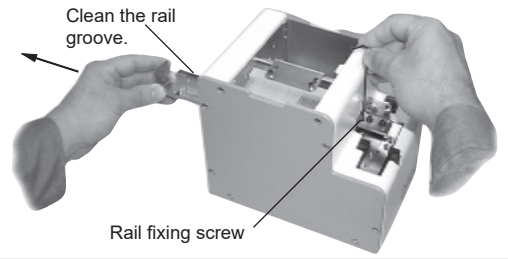
9.2 Maintenance

If the rail groove becomes dirty, the loaded screw transport speed may be slow.

In case the rail groove is very dirty, clean it with a thin and clean cloth dipped in alcohol. If cleaning is difficult, detach the rail from the main body and clean the rail groove. If the rail is detached from the main body, be sure to turn off the power supply and take out loaded screws in the scooping chamber beforehand.

If there is any dirt or a flaw in the rail groove that may cause an impediment to use, we recommend the user to replace the rail.

Loosen the rail fixing screw, and the rail can be detached from the rear side of the main body.



10. Troubleshooting

CAUTION For safety, always unplug the AC adapter from the wall outlet before making any adjustments.

Trouble	Cause	Corrective Measures
1 The machine does not operate though the power switch is turned on.	- Power is not supplied.	- Check the connection of the power supply of the AC power adapter.
	- The machine has not unloaded screws from the unloading section for a certain time.	- Take out the screws from the unloading section. - Adjust the timer setting knob.
	- Too many screws were put into the scooping chamber.	- Reduce the quantity of screws in the scooping chamber to a proper level.
	- A foreign material (for example, screw) was put in the main body.	- Remove the foreign material.
	- The AC adapter is faulty.	- Please contact your dealer.
2 Screws do not flow.	- Screws with a larger nominal diameter than the specified nominal rail size were loaded or screws with a different diameter were mixed in together.	- Use screws with the specified nominal diameter. - Remove the mixed screws.
	- An insufficient quantity of screws are in the scooping chamber.	- Add a proper quantity of screws into the scooping chamber.

Trouble	Cause	Corrective Measure
2 Screws do not flow.	- Screws in an abnormal position in the passing plate cannot be swept away with the brush.	- Adjust the brush. Adjust the passing plate. If a proper quantity of screws is put into the scooping chamber, the status may be improved. Use the optional brush (a more bristly).
	- The axis of screw thread entered the passing plate.	- Remove the abnormal screw. After that, adjust the passing plate.
	- A screw has stopped in an abnormal position while moving on the rail.	- Remove the screw in the abnormal position. The removing method is as described below. Take care not to damage the rail groove. Move the holding plate bracket Assembly upward to remove the screw. After that, adjust the position of the holding plate.
	- The rail does not move backward and forward. (For example, a screw is obstructing the clearance.)	- Remove the screw that is obstructing the clearance. - Check the vibration adjustment.

Trouble	Cause	Corrective Measure
3 A screw has fallen down into the rail groove.	- Screws with a smaller nominal diameter than the specified nominal rail size were loaded. - Screws with a smaller total length than the rail groove width were loaded.	- Use screws with the specified nominal diameter. - No corrective measure is available. Consult our service section.
4 The screw flow on the rail is improper.	- The clearance between the holding plate and the head of the loaded screw is narrow. - Screws with spring washer having one-step smaller than the specified nominal rail size were loaded. - Dust or oil is stuck on the rail. - The rail does not vibrate. (A screw is caught in the clearance.) - The motor is exhausted.	- Adjust the holding plate bracket Assembly. (Adjust the hplding plate.) Adjust the vibration. Operate this machine in an inclined status. - Clean the rail. - Remove the screws caught in the clearance. - Check that the vibration is properly adjusted. - Replace the motor.

Trouble	Cause	Corrective Measure
5 Screws tend to pass the passing plate in an abnormal position. The axis of screw thread tends to enter the passing plate.	- The passing plate is not adjusted properly. - Too many screws are in the scooping chamber.	- Adjust the passing plate. - Reduce the quantity of screws into a proper level.
6 No screw comes to the unloading section.	- Screws are stopped while still on the rail. - Screws cannot be transferred smoothly from the rail to the escaper.	- Adjust the position of the holding plate. - Adjust the positional relation between the end of the rail and the escaper.
7 This machine stops its operation suddenly.	- The overload protective circuit was actuated. - Too many screws are in the scooping chamber. - A screw is caught in the clearance. - Screws in the unloading section could not be unloaded for a certain time.	- Turn the machine off and on once again. - Remove the cause of overload. - Reduce the quantity of screws to a proper level. - Remove the caught screw. - Take out screws.

Trouble	Cause	Corrective Measure
8 The scooping operation cannot be stopped though screws are in the unloading section.	- The timer knob is not properly adjusted.	- Readjust the time knob.
9 The escaper operation cannot be stopped though screws are in the unloading section.	- The sensor does not detect a screw.	- Readjust the voltage level of the sensor.
10 A screw has fallen down into the this machine.		- Shake down the screw from the hole at the back of the machine.
11 The noise of this machine has increased.	- Grease is insufficient.	- Apply grease to the moving section. ○ Recommended grease: BR2 Plus of Dow Corning Asia Co., Ltd.

11. Specifications

Power AC adapter (switching type)	Input: AC100～240V 50/60Hz Output: DC15V 1A
Dimensions	123(W) × 181(D) × 145(H) (mm)
Weight	Approx. 3. OKg (including rail)
Screw capacity	Approx. 80cc
Following accessories	Operation Manual 1 copy AC Adapter 1 unit Hexagonal Wrench 1 piece Screwdriver 1 piece Ground wire 1 piece
Installation location	Level stable place
Installation and storage condition	Temperature 0 ~ 40 ℃ Humidity 10 to 85% (without condensation)
Compliance standards	EMC: 2014/30/EU MD: 2006/42/EC RoHS: 2011/65/EU

Notes:
- Check if the axis diameter of the loaded screw matches the above rail groove width.
- In the main body type, the main body model can be changed.
- To change the nominal diameter of loaded screw, replace it with a part that is mentioned in the above table.
- The rail, escaper, and passing plate for replacement are separately available.
- The design, performance, and specifications are subject to change without prior notice for the sake of improvement.

-The noise of this unit is less than LAeq 70 dB at a distance of 1 m.
-This product complies with EU directive. Please check the EU Declaration of Conformity for compliance standards.

Reference table of the specified screws					Shape of screw head						
							Pan head				
Screw size	Screw shaft diameter(φ)	Screw head diameter (φ)	Screw head thickness (mm)	Screw shaft length (mm)	No. 0 pan head	Pan head	Sems	Double sems	Washer head	bind	Counter sunk head
φ1.0	0.9～0.95	1.8～4.5	0.35～1.0	1.6～10	○						
φ1.2	1.1～1.15	1.8～4.5	0.35～1.0	1.9～10	○						
φ1.4	1.3～1.4	2.0～4.5	0.35～1.0	2.2～10	○						
φ1.7	1.6～1.7	2.5～4.5	0.35～1.0	2.7～10	○						
φ2.0	1.9～2.1	3.0～6.0	0.35～4.5	3.2～20		○	○	○	○	○	○
φ2.3	2.2～2.4	3.3～6.0	0.35～4.5	3.7～20		○	○	○	○	○	○
φ2.6	2.5～2.7	3.6～6.0	0.35～4.5	4.2～20		○	○	○	○	○	○
φ3.0	2.9～3.2	4.0～6.0	0.35～4.5	4.8～20		○	○	○	○	○	○

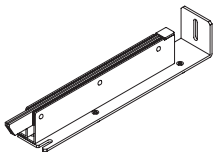
※ Conpatible wth washer diameter up to 9 mm, thickness 0.35 to 1.0mm.

Screw feeder series	Screw feeder model	Screw size	Exchange kit No.	Rail model No.	Escaper model No.	Passing plate model No.
NSR	NSR10	φ 1.0	SRR10SET	SRR10	SE10	SW1017
	NSR12	φ 1.2	SRR12SET	SRR12	SE12	
	NSR14	φ 1.4	SRR14SET	SRR14	SE14	
	NSR17	φ 1.7	SRR17SET	SRR17	SE17	
	NSR20	φ 2.0	SRR20SET	SRR20	SE20	SW2030
	NSR23	φ 2.3	SRR23SET	SRR23	SE23	
	NSR26	φ 2.6	SRR26SET	SRR26	SE26	
	NSR30	φ 3.0	SRR30SET	SRR30	SE30	

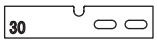
- In the Exchange kit ordered, Rail assembly, Escaper and passing plate are included.
- Please contact us by " ～ SET" type when you need rail.

○Replacement parts

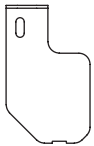
・Rail



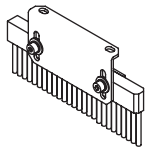
・Escaper



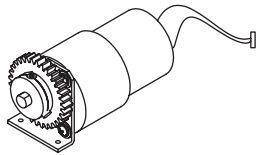
・Passing plate



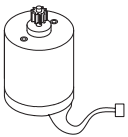
・Brush assembly
NSB02053 #01



・Main motor unit
NSB03056

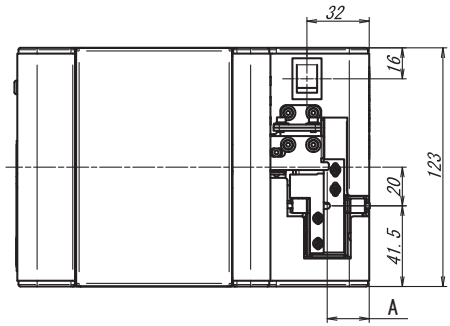


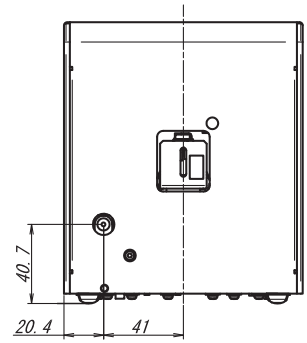
・Escaper motor (With Harness)
NSR08629

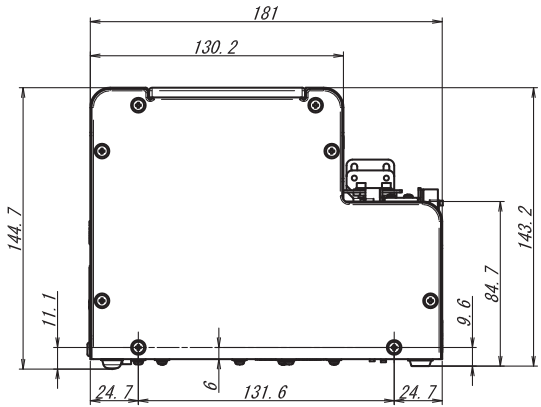


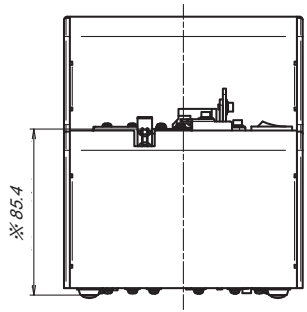
12. External Dimensions

Screw size	Approximate measurement of A
φ 1.0	22.6
φ 1.2	22.5
φ 1.4	22.4
φ 1.7	22.2
φ 2.0	22.1
φ 2.3	21.9
φ 2.6	21.8
φ 3.0	21.6









※ Height till top of esscaper

Unit : mm

13. Warranty

For users within Japan, the effective term of warranty is 6 months after delivery.
Such warranty will not be applicable to purchases or users outside of Japan.
If any troubles should occur, please contact your dealer.
After the warranty period, repair services will be completed.
In the following cases, the purchaser shall pay for parts and labor regardless of the terms of warranty:

1. Failure due to improper handling.
2. Failure due to product modification or improper processing.
3. Failure due to causes beyond control (for example earthquake or fire).
4. Failure attributable to any cause other than this product.
5. Consumables (brushes, main motor, escaper motor)
   and replaceable parts and replacement work expenses.

The repair parts shall be available within 5 years after purchase.

http://www.ohtake-root.co.jp

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(as of Apr. 2024)
(2024 年 4 月現在)