ASAHI SUNAC

Operation and Maintenance Manual

Air Electrostatic Handgun

HB-X3S
HB-X3M

Ec'Coater™ エコーター

This manual contains important information on warnings and cautions.
Read the manual thoroughly before starting to operate this equipment, and follow the instructions.
Always keep the manual handy until such time as the pump is no longer being used. If your manual is lost or worn badly, do not hesitate to contact our agency which is closest to you, or the Asahi Sunac Corporation, directly, and ask us to send you a new one.

30th Edition: May 14, 2025

Introduction

Thank you for purchasing our product air electrostatic handgun <HB-X3S/HB-X3M>.

Please be sure to read this operation manual carefully before using this product so that you can always use it under the optimum conditions.
In particular, please fully understand the items in the specifications and use them according to the correct usage.

This product is used in combination with an electrostatic controller (BPS130/BPS1600).
Be sure to read the operation manual of the electrostatic controller carefully.

If you have any questions, please contact us by clearly stating the "product number" and "serial number" and contacting us on the back cover.

Please keep this operation manual in a safe place where you can easily refer to it.

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1 For safe and correct use

Please understand the contents of this instruction manual and be sure to follow the handling method. If you use it without following this instruction manual, **you may injure your body or damage your equipment and fire.**

The following safety precautions should be considered as minimum basic safety measures when using our products.

●Precautions are displayed in the following two stages.

⚠ **WARNING**	Hazards that can result in death or serious injury.
⚠ **CAUTION**	Danger that may result in minor or moderate injury or physical damage only.

●Other important points are indicated as follows:

NOTE	Observations to ensure the equipment's performance and functions are fully operational.

In addition, please observe all national and local laws and regulations related to fire, electricity, and safety, as well as the rules and regulations of your own company or business division.

≪Range of use suitable for the product≫

This product is a manual spray gun designed to be installed in the coating booth equipped with an exhaust system and to spray paint for the air electrostatic atomizing spray.

If you use the product under conditions other than the above, it will be used improperly. Also, please be careful as it may cause an accident.

《Warning and precautions for safe use》

⚠ WARNING

Fire and explosion

Preventing fire and explosion in coating shop

- **Do not use halogenated hydrocarbon solvents.**
  The aluminum alloy contained in this product's components may undergo a chemical reaction and explode.

- **Do not use this product outside its specifications.**
  Using it out of specification range may result in a fire hazard.

- **Provide adequate ventilation with ventilation equipment.**
  Volatilized organic solvents and other substances may remain and ignite, creating a risk of fire.

- **Clean the coating room and exhaust system (ducts and fans) regularly.**
  If the accumulated powder simply peels off, a spark may occur, which could cause a dust explosion.
  In the unlikely event of a fire, paint residue etc. will make it easier for the fire to spread and result in greater damage.

Prevent fire and electric shock caused by faulty earthing

- **All conductive objects in the coating booth (paint containers, peripheral equipment, etc.) must be grounded with an earth wire.**
  In an atmosphere ionized by high voltage, poorly grounded conductors can become charged, creating a risk of fire or electric shock due to spark discharge.
  The earth should be **Class D grounding or higher** (ground resistance 100 Ω or less).

- **Always keep the workpiece earthed.**
  Risk of fire or electric shock due to spark discharge from charged workpieces.

- **Paint hose must be grounded with an earth wire.**
  Static electricity can cause spark discharge, which can result in fire or electric shock.
  When paint flows through the injector and paint hose, static electricity is generated and becomes charged.

- **The paint container must be grounded with an earth wire (excluding the insulated stand specifications).**
  The paint path can cause the paint container to become charged, a risk of fire or electric shock.

- **The electrostatic controller must be grounded with an earth wire.**
  Static electricity can cause spark discharge, which can result in fire or electric shock.
  The machine is also grounded via the electrostatic controller, so be sure to connect the earth wire with screws or other fasteners to prevent it from coming loose.

《Warning and precautions for safe use》

⚠ WARNING

Fire and explosion

Prevent fire and electric shock caused by faulty earthing

- **Be sure to periodically remove any paint that has stuck to the hanger.**
  If paint adheres to the contact part between the hanger and the object, there is a risk of fire or electric shock due to poor earthing.
  The ground resistance value should be 1kΩ or less for metal (1MΩ or less for resin) (measurement voltage should be 500V or more).

- **Do not place any items in the coating booth that are not necessary for coating.**
  Static electricity can cause spark discharge, which can result in fire or electric shock.

- **Paint operator must take precautions to prevent static electricity.**
  Static electricity builds up on the human body, causing sparks to discharge, which may result in fire or electric shock.

Prevent fires caused by ignition of paints and solvents

- **When nozzle cleaning, turn off the power to the electrostatic controller.**
  If high voltage is applied during nozzle cleaning, there is a risk of fire.

- **Do not bring any spark-producing devices, matches, lighters, etc.**
  Risk of explosion or fire due to ignition of flammable materials.

Equipment misuse

Preventing accidents caused by poor maintenance

- **Any abnormal noise, vibration or high voltage leakage, immediately stop operation.**
  Product damage may result in a fire hazard.

- **Do not operate if any parts are damaged or missing.**
  Product damage may result in a fire hazard.

《Warning and precautions for safe use》

WARNING

Human protection

Protection from high voltage

- **Please wear anti-static shoes.**
  Static electricity builds up on the human body, causing sparks to discharge which may result in fire or electric shock.

- **Do not touch anything other than the gun grip while high voltage is applied.**
  Touch with high voltage parts may result in electric shock.

- **The coating work floor must have an anti-static construction with a leakage resistance of 1 MΩ or less.**
  There is a risk of electric shock to the operator.
  The scope of the antistatic structure is the entire work floor in a closed paint room.
  In an open paint booth, it is the area surrounded by 1.5m on either side of the booth opening and 2.5m in front of it.
  To maintain the antistatic effect, clean the work floor when it becomes dirty.

- **Do not use this product if you have a pacemaker.**
  The high voltage of this product may cause pacemakers to malfunction or stop functioning.

Protection from solvents, air and paint pressure

- **Do not spray paint towards person**
  Harmful substances may cause serious injury, including inflammation and poisoning.
  Pressurized paint can cause personal injury.

- **Wear protective glasses, a protective mask, and protective gloves[*1] when handling paint.**
  Harmful substances may cause serious injury, such as inflammation or poisoning.
  Carefully read the safety data sheet (SDS[*2]) of the paint you are using and take appropriate exposure prevention and protective measures.
  *1 When using protective gloves for skin absorption protection or to prevent dirt, it is necessary to prevent static electricity from building up on the human body. Be sure to ground it properly. (Recommended protective gloves are those specified in JIS T8118, or earth bands, etc.)
  *2 SDS：Safety Data Sheet

- **Clean the coating room and exhaust device (ducts and fans) regularly.**
  If the exhaust device does not function properly, harmful substances may cause serious injury, including inflammation and poisoning.

《Warning and precautions for safe use》

⚠ WARNING

- **Do not use this product outside its specifications.**
  Using it out of specification range may result damage to the product.

- **Do not immerse the coating machine, connection/extension cable or hoses in cleaning solvent.**
  Electrostatic sprayer are electrical machines, immersing them in cleaning solvents may cause break down.

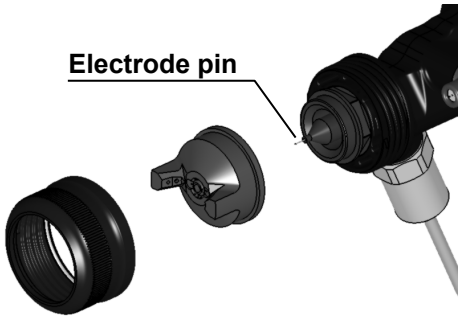
- **Connection/extension cable and hose should be hung from the ceiling or side walls and not dragged across the floor.**
  It may cause damage such as scratches.
  When using conductive paint, be sure to suspend the paint hose from an insulating material such as a rubber tube.

- **When cleaning the nozzle, never use a metal brush, use a bamboo brush or similar.**
  It may damage the nozzle and result in poor coating.
  The nozzle is an important part of the sprayer.
  If you use a metal brush to damage the nozzle, it will become difficult to maintain uniform spray conditions.

- **Always keep a distance of at least 150mm between the tip of the nozzle and the work piece.**
  The potential at the tip of the nozzle will decrease, causing poor coating results.

- **Check frequently for paint leaks, air leaks, and loose screw.**

- **Do not touch the electrode pins of the spray gun carelessly.**
  The electrode pin may pierce the body and cause injury.
  Be careful when handling the electrode pin as they are easily pierced.



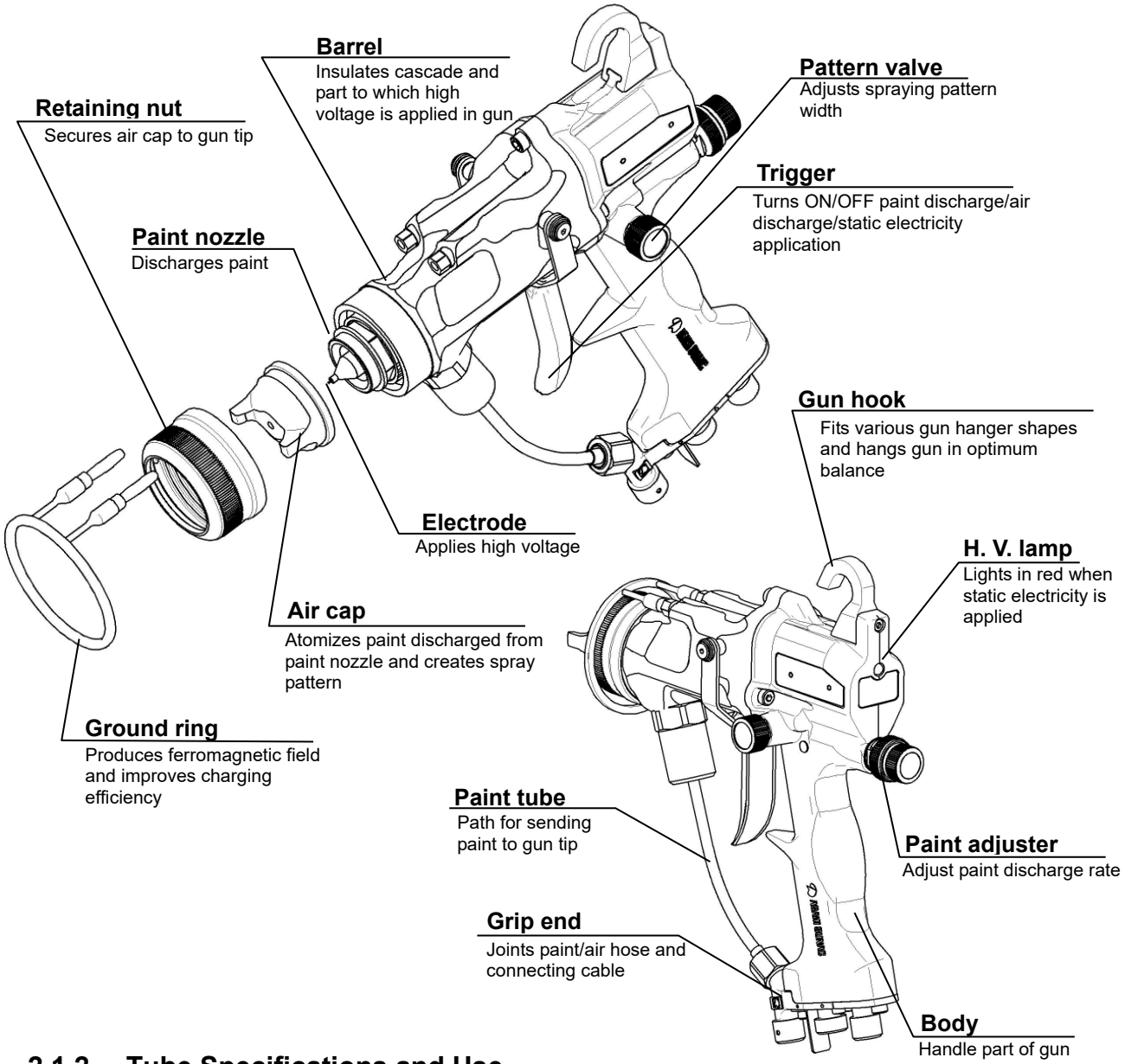
- **A fire extinguisher should always be kept near the work area.**
  In case of a fire, make sure to have equipment that has been regularly inspected installed at all times.

- **When disposing of this product, please dispose of it in accordance with the laws of your country.**

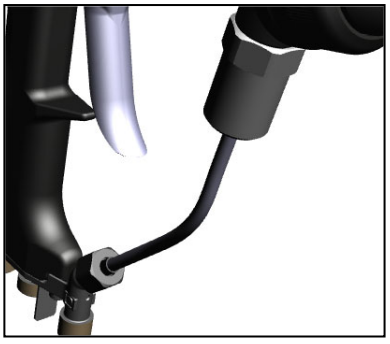
2 Equipment Overview

2.1 Names and Roles of Parts

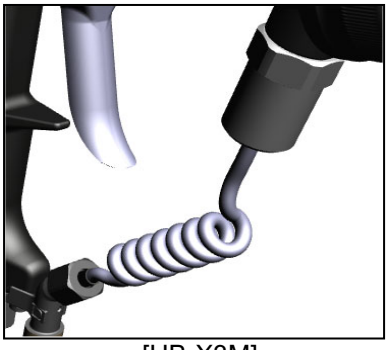
2.1.1 Names and Roles of Main Unit Parts



2.1.2 Tube Specifications and Use



[HB-X3S]
Straight tube
Usage: For solid/clear paint

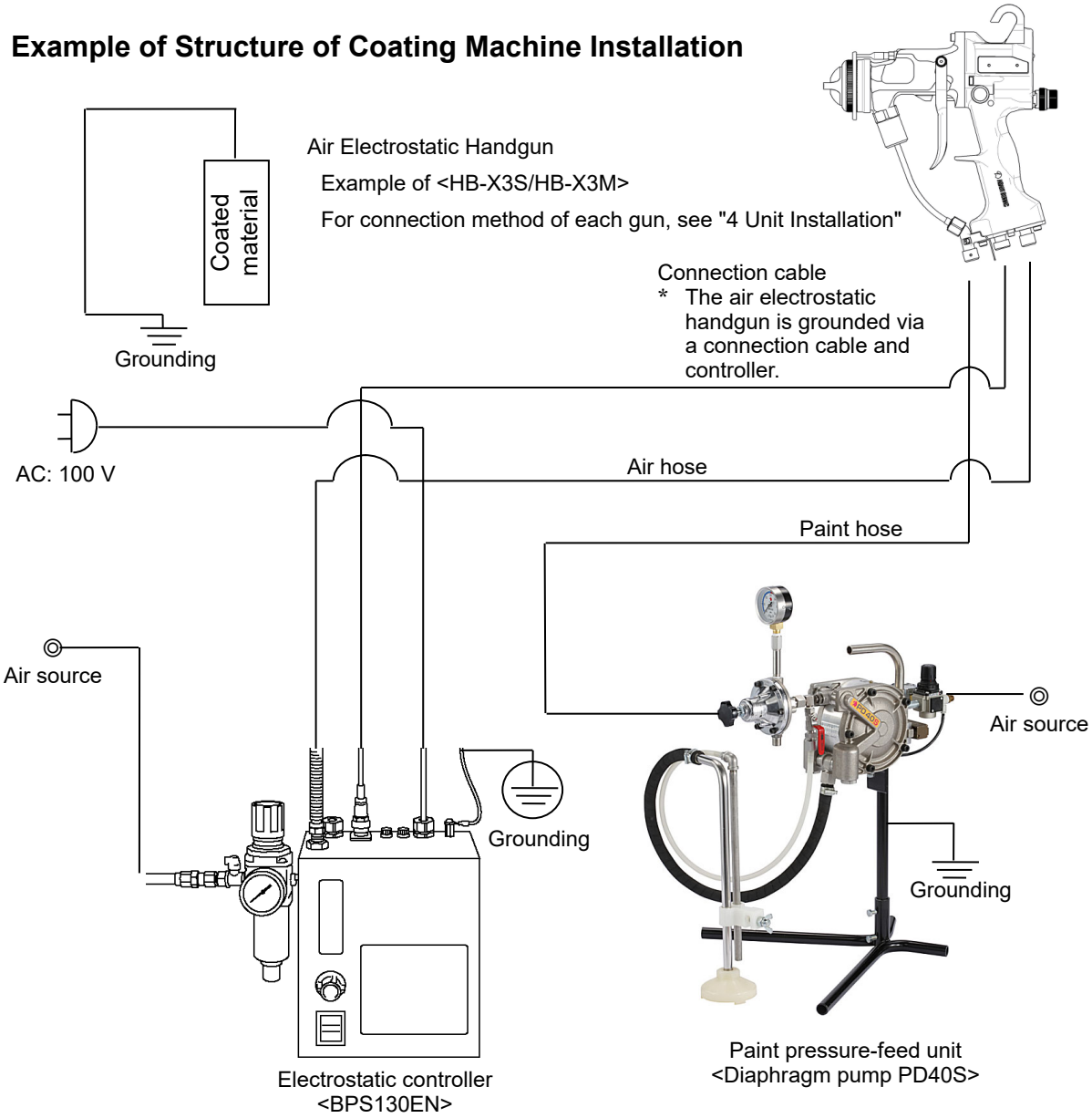


[HB-X3M]
Spiral tube
Usage: For metallic paint

⚠ WARNING

If the ground ring at the gun tip is not correctly connected, high voltage is not applied.
At the start of work, check that the ring is correctly connected.

2.2 Example of Structure of Coating Machine Installation



NOTE

No paint hose/air hose/connecting cable/electrostatic controller BPS130EN/diaphragm pump PD40S are attached.

⚠ WARNING

Install the control unit outside of the coating booth and at a place at least 1.5 m away from the booth opening or entrance.

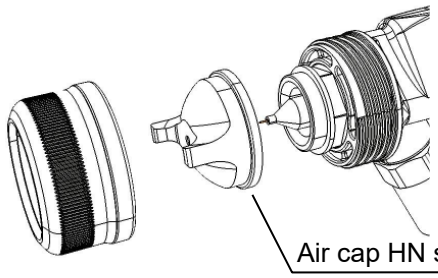
2.3 Related Accessory Equipment

- The related accessory equipment and maintenance tools are necessary for the operation of this product.
  Select appropriate equipment from the following according to its usage/conditions and arrange it separately.
- As for arrangement of the products and parts of the related accessory equipment, check their part No. and quantity with their equipment manuals separately.

2.3.1 Air Cap (Model: HN Series) (Separately Offered)

- A part attached to the tip of the coating machine having a function of atomizing and creating pattern by force of air.
- Select an air cap from the separate manual according to its usage.

Air cap HN series image

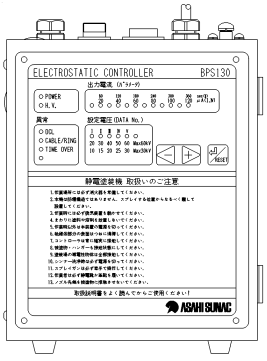


*All the HN series can be used for the common paint nozzle assembly.

2.3.2 Electrostatic Controller (BPS130EN series)

- Equipment which controls high voltage application of the cascade contained in the coating machine. Also it detects abnormality and performs output in current monitoring when used.

BPS130EN outline view



BPS130EN part No. list

No.	Model	Part name	Part No.	Input voltage	Specifications
1	BPS130EN	Electrostatic controller	52544	100–120 V	With base
2			52545		Without base

* Please refer to the Maintenance Manual of BPS130EN for detailed use.

2.3.3 Transmission Cable

- By combining and connecting a "connecting cable" and "extension cable" between the coating machine and electrostatic controller, it can be used up to 30 m.

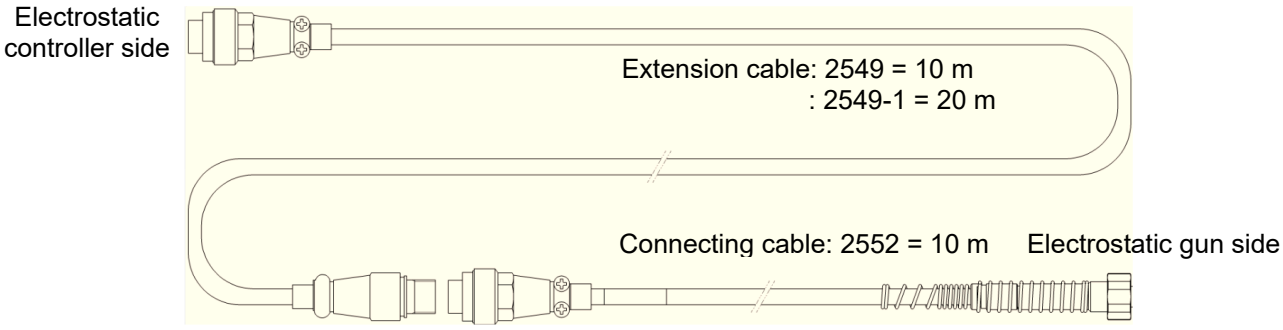
[Connecting cable part No. list for BPS130EN]

No.	Part name	Part No.	Specifications
1	Connection cable	2552	10 m

[Extension cable part No. list for BPS130EN]

No.	Part name	Part No.	Specifications
1	Extension cable	2549	10 m
2		2549-1	20 m

Transmission cable connection



- If combining it with the old-type electrostatic controller BPS120, use the following connecting cable and extension cable.

[Connecting cable part No. list for BPS120]

No.	Part name	Part No.	Specifications
1	Connection cable	2574	10 m

[Extension cable part No. list for BPS120]

No.	Part name	Part No.	Specifications
1	Extension cable	2569	10 m
2		2570	20 m

2.3.4 Air Hose (Model: AH22 Series)

- To supply air required for atomization of paint and pattern creation to the coating machine, connect it between the air regulator of the electrostatic controller and coating machine.
- A grounding wire is contained; therefore, the ground of the coating machine can also be secured through the air path and safety is improved.

[Air hose part No. list]

No.	Model	Part name	Part No.	Specifications
1	AH22-5	Air hose	3403	5 m
2	AH22-10		3403-2	10 m
3	AH22-20		3403-3	20 m

2.3.5 Paint Hose

- A paint hose for sending paint from the pump to the coating machine.
  A very flexible multilayer tube is employed to improve the handling of the gun.

Paint hose part No. list

No.	Part name	Part No.	Specifications
1	Paint hose	3421	5m
2	Paint hose	3421-2	10m
3	Paint hose	3421-3	20m

2.3.6 Maintenance Tool Set

- Preventive maintenance of parts and repair/part replacement due to failures can be done by replacing the targeted part assembly, but this is a maintenance tool set consisting of dedicated tools for more detailed part replacement and maintenance of the cascade assembly etc. and control tools for strict torque control.

⚠ CAUTION

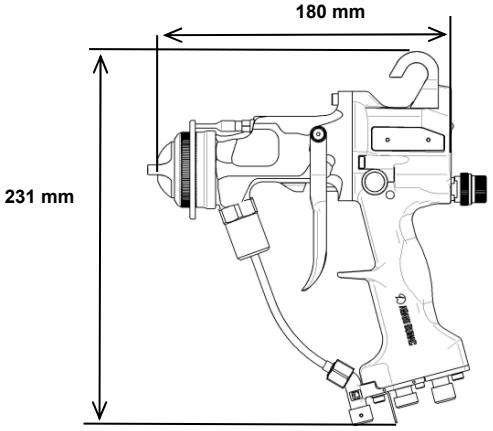
If you are interested in detailed maintenance, we will provide a maintenance course.
Only the person who have attended the maintenance course specified by us, can detailed maintenance.
For information on the maintenance course, please contact our person in charge.

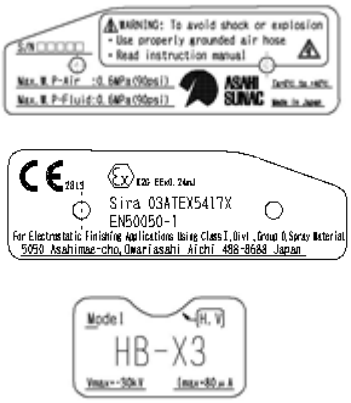
Maintenance tool set

No.	Part name	Part No.	Remarks
1	Maintenance tool set	35EA	

3 Specifications

3.1 Dimensional Outline





3.2 Product Specifications

Model	HB-X3S	HB-X3M
Applicable paints	Solvent solid/clear paint	Solvent metallic paint
Maximum fluid pressure	0.6 MPa	
Maximum air pressure	0.6 MPa	
Maximum operating voltage	DC-30 kV	
Operating environment	Temperature: 5–40°C Humidity: 40–80%	
Mass	560 g * Including nozzle and air cap	
Applicable air cap	HN400/HN600/HN800 *For details, see the separate catalog.	
Electrostatic controller	BPS130EN,BPS1600	
Connecting cable length	10 m *By combining it and a extension cable, it can be used up to 30 m.	
Supply air conditions	Solid particle size: 0.1 μm or below Dew point under pressure: 10 °C Dew point under atmospheric pressure: −17°C Residual amount of oil: 0.01 mg/m^3	

3.3 Specific conditions of use

These electrostatic gun and controller shall only be used in one of the following combinations.

Certificate No.	Gun	Controller
03ATEX5417X	HB-X3	BPS130EN BPS1600

NOTE

Do not use a paint heater. Supply paint at 40°C or below.
If the temperature of paint is high, the paint hose may soften and be disconnected.

NOTE

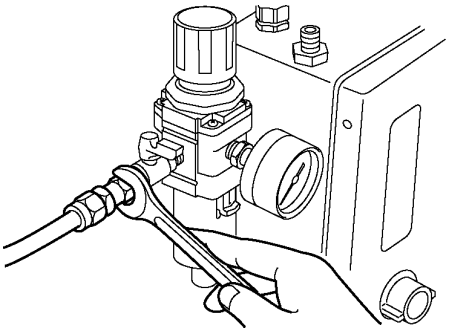
For details on the paint pressure-feed unit and paint regulator, see the instruction manuals.
The paint pressure-feed pressure should be 0.6 MPa or less.

4 Unit Installation

Make preparations in accordance with the following procedures when starting to use the unit.

4.1 Connection of Air Source

Connect the air source to the air regulator attached to the electrostatic controller.
(Screw port diameter: PF1/4)

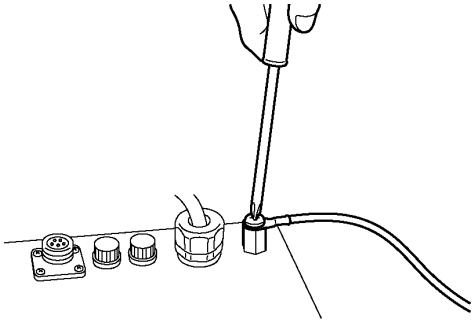


4.2 Connection of Grounding Wire

Be sure to connect it to the controller. For this operation, a Phillips screwdriver is required.

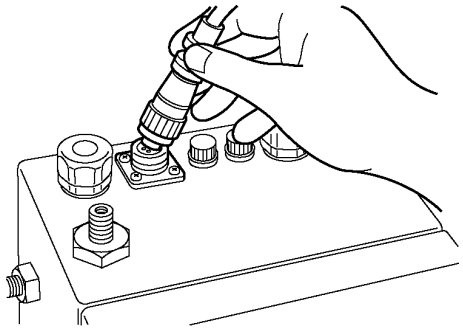
⚠ CAUTION

The diameter of the grounding wire of the electrostatic controller should be 3.5 mm^2 or more and it should be laid at a place where type D grounding (grounding resistance:100 Ω or less) has been done.

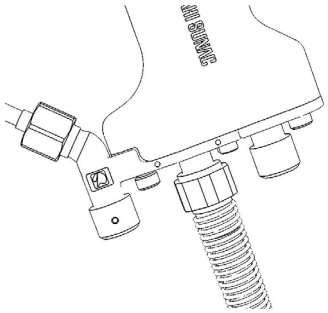


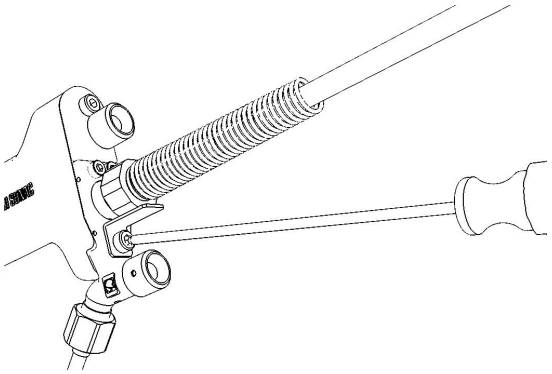
4.3 Transmission Cable

Wipe the metal connector at the end of the connecting cable attached to the coating machine with a clean cloth, securely tighten it to the output terminal “OUTPUT” of the electrostatic controller.



Attach the cable to the gun by securely tightening it with a hex. 17 mm spanner. After attaching it, prevent loosening with a stopper. If the attachment position cannot be adjusted, do not tighten it forcibly. Loosen the nut and attach it so that the stopper surface will stick to the hex. flat part.





⚠ CAUTION

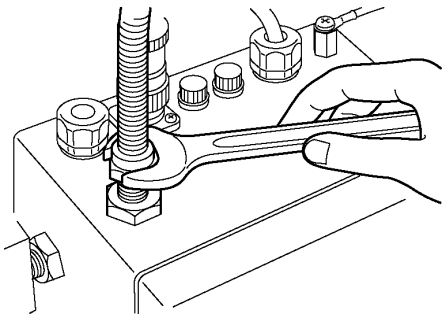
<u>Damage of the unit may occur.</u>
Do not tighten the connecting cable too tightly. Be sure to prevent loosening with a stopper.
Forcible tightening with a tool may damage the cable connector.

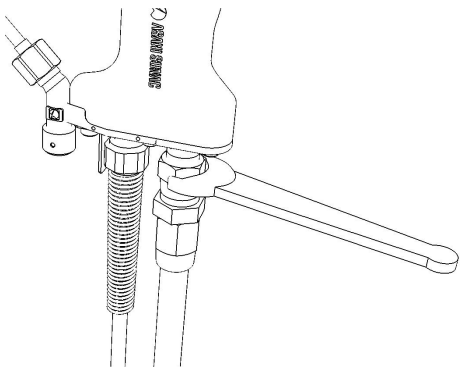
⚠ CAUTION

<u>Disconnection of a cable may occur.</u>
When bundling the connecting cable, air hose and paint hose with tape and the like, loosen them slightly so that pull force will not be applied to the cable. If you use it with the cable pulled, it may lead to disconnection. For details, see "4.6 Binding of Connecting Cable and Precautions for Use".

4.4 Connection of Air Hose

Connect the end connector of the black air hose to the nipple at the lower end of the gun grip (next to connecting cable). Then connect the other end connector to "AIR OUT" of the electrostatic controller and tighten it. (Screw port diameter: PF1/4) A 17 mm spanner is required for this operation.





⚠ CAUTION

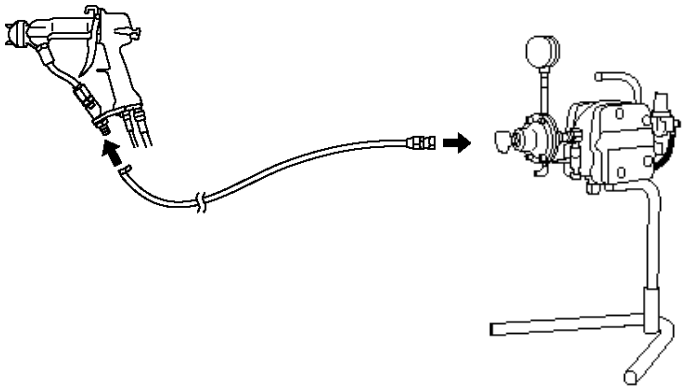
Damage of the unit may occur.
When tightening an air hose or paint hose to the gun, be sure to use two spanners and do not apply excessive force to the gun. Also remove it so that the spanner will not touch the cable connector.

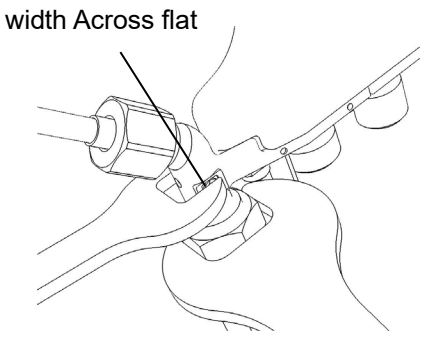
NOTE

If the length of the air hose is 10 m or more, by using a 3/8 air hose, atomization of paint will be improved. If a joint bush (3204-027) is attached, it will be a screw port diameter of PF3/8.

4.5 Connection of Paint Hose

Connect the end connector of the paint hose to the lower end of the gun grip (in front of connecting cable) and attach the other end paint hose connector to the paint pressure-feed unit (screw port diameter: PF1/4).





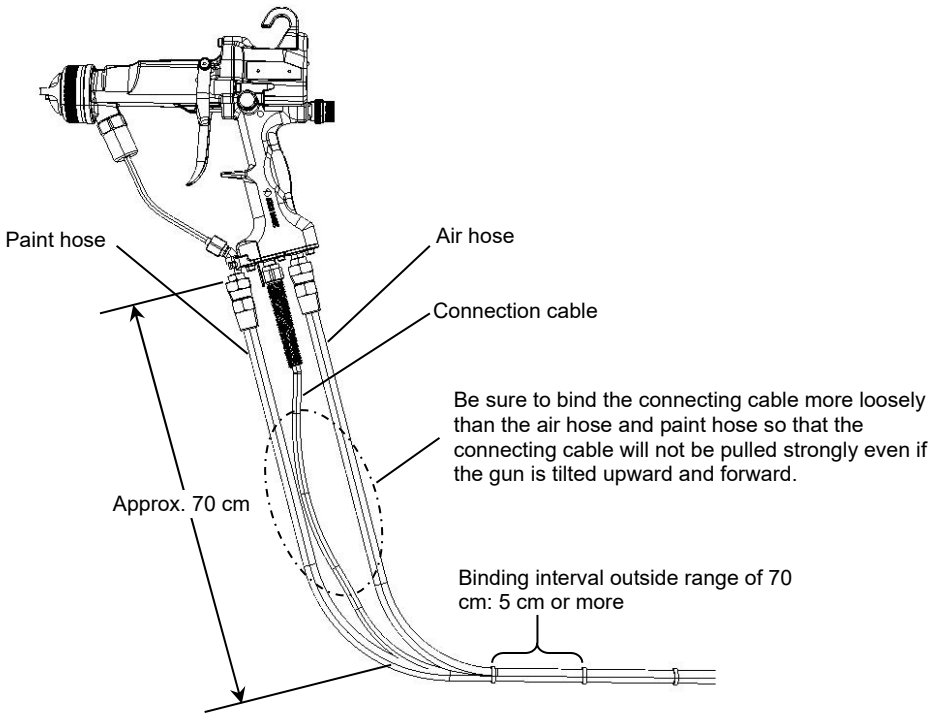
When paint hose is retighten, hook tools (wrench) to width Across flat.

Please be carried out with care prevent from scratch the grip-end surface.

4.6 Binding of Connecting Cable and Precautions for Use

⚠ CAUTION

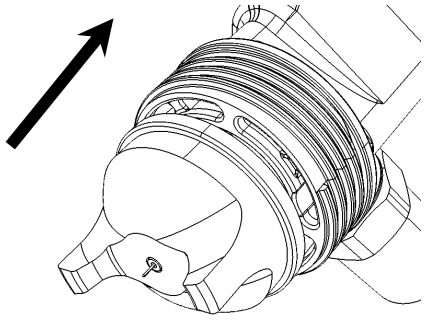
1. To prevent reduction in strength and service life of the connecting cable, be sure to observe the following for binding of connecting cable of the electrostatic gun.
   (1) Do not bind connecting cable within a range of approximately 70 cm from the electrostatic gun handle.
   (2) Bind the connecting cable while securing allowance of the connecting cable for the air hose and paint hose so that the connecting cable will not be strongly bent or pulled when aiming the electrostatic gun upward, downward, left and right.
   (3) Loosely bind the cable outside a range of 70 cm from the electrostatic gun handle at intervals of 5 cm with plastic banding bands (insulock) and plastic tape not by tightening it too tightly. In particular, do not wind plastic tape and wide spiral tubes seamlessly. The wound part will be a rod-like shape and its both ends will be broken, which leads to disconnection and damage of the connecting cable and hose.



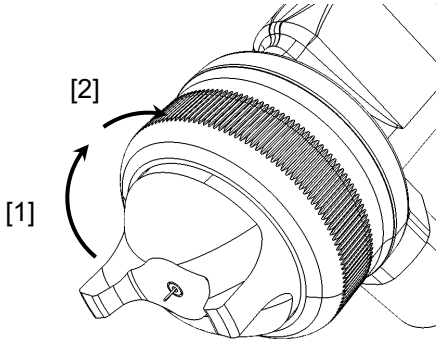
2. Operate the electrostatic gun and bind the connecting cable so that the connecting cable, air hose and paint hose will not be forcibly bent or strongly pulled during painting. Strength may be lowered and disconnection may occur.
3. Be careful not to step on the connecting cable. In particular, if you step on it on metal floor grates, it may be disconnected.
4. Do not wind plastic tape only on the connecting cable (especially vicinity of electrostatic gun connector) seamlessly for reinforcement and prevention of contamination. Strength may be lowered and disconnection may occur.
5. Do not immerse the connecting cable in the solvent or paint for a long time. If it is immersed for a long time, its strength and service life will be reduced significantly.
6. After cleaning the connecting cable, be sure to wipe off the solvent attached to the surface or blow it with air.
7. Do not use metal banding bands. Static electricity accumulates and you may get a shock.

4.7 Installation of Air Cap

(1) Fix the air cap to the nozzle by hand.
At this time, be careful so that the electrode pin will not be bent due to the air cap.
Also tilt the gun tip downward so that thinner or solvent will not enter the gun.



(2) Attach the retaining nut assembly to the outside of the air cap.
[1] Tighten the retaining nut assembly tightly, and then adjust the angle direction of the air cap to the direction of pattern creation.
[2] Tighten the retaining nut assembly more strongly until the air cap is fixed.



⚠ CAUTION

Personal injury and damage of the electrode pin may occur.
When attaching the air cap to the gun, do not touch the electrode pin.

⚠ CAUTION

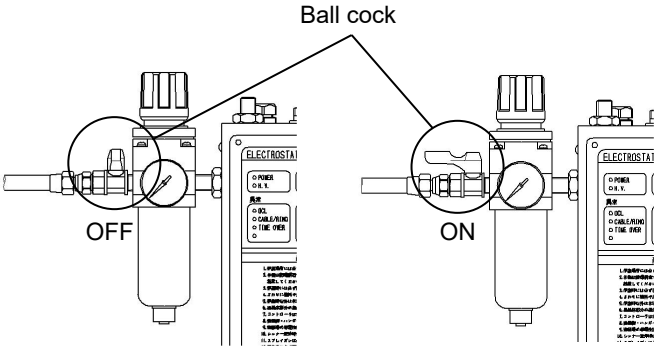
Damage of the unit may occur.
Since this is a plastic product, the nozzle attachment joint inside diameter screw may be damaged if tightened too tightly. Remove it with sufficient care.

5 Check Before Coating Operation

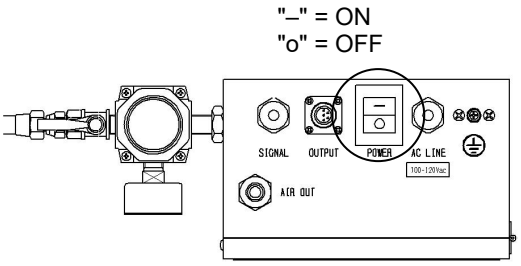
Before a coating operation, check the coating machine in accordance with the following procedure.

5.1 Inspection of Cascade

(1) Open the ball cock of the electrostatic controller and adjust the air supplied to the gun to 0.3–0.4 MPa with an air regulator. Then check that there is no air leakage from the connection of the hose.

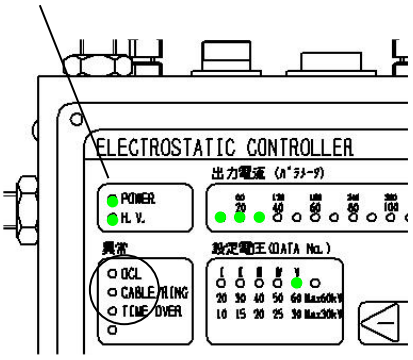


(2) Turn on the power switch of the electrostatic controller while holding the grip of the gun.
If it is normal, a green lamp will be lit on the controller.
At this time, no high voltage is applied to the tip of the gun.



(3) Pull the trigger of the gun.
If air is discharged from the nozzle, the air flow switch contained in the electrostatic controller will be activated, the high voltage indicator (green) of the controller will be lit and high voltage will be generated.
Also the H.V. lamp (red) on the back of the gun body will be lit.
When the red lamp is lit, high voltage is applied to the tip of the gun.

High voltage indicator "H.V." = Green light



⚠ WARNING

Personal injury and accidents may occur due to electric shock.
Do not touch the air cap, nozzle and electrode pin when high voltage is applied.

⚠ CAUTION

When an inspection is completed, turn off the power switch of the electrostatic controller.

⚠ CAUTION

If the ground ring is not attached, high voltage is not generated.

5.2 Mixing of Paint

Since this unit can obtain an electrostatic effect with almost all plastic paints except some paints, it is not necessary to mix paints specially. However, it is possible to obtain a higher electrostatic effect by adjusting the electric resistance of solvent etc. depending on the case. In the case of paints whose electric resistance is extremely low or high, a high electrostatic effect is not expected. Check the resistance with a paint resistance meter. In most cases, it is possible to obtain a good effect by adjusting paint resistance to approximately 15–70MΩcm. In the case of resistance lower than 15MΩcm, even though the electrostatic effect is good, if the ventilation of the booth is not appropriate, paint may splash back at the gun and operator.

NOTE

If paint is sprayed on the front surface and a coating film is formed on the back surface with a steel pipe of φ 20–30 mm in diameter grounded, it is judged that the electrostatic effect is good.

⚠ CAUTION

Conductive paint whose electric resistance is extremely low such as water paint cannot be used.

⚠ CAUTION

Use paint and solvent whose flash point is 5°C or more higher than the room temperature and be sure to operate the ventilation system.

NOTE

If you have any doubt about compatibility of the gun, system and paint, please consult us.

6 Coating Preparation

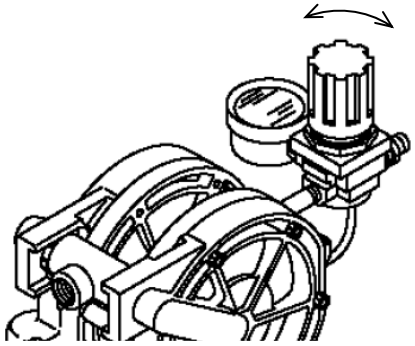
Before a coating operation, make preparations for coating in accordance with the following procedure.

⚠ CAUTION

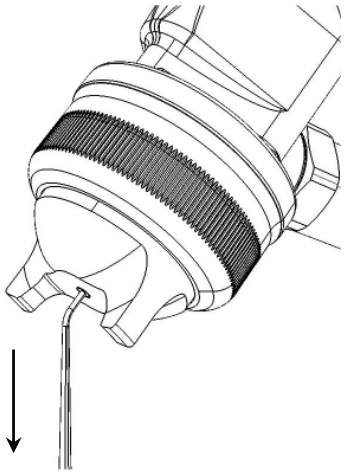
Check that the power switch of the electrostatic controller is turned off.

(1) Put paint in the paint feed unit.
When this coating machine is used, the general standard viscosity is approximately 9–30 sec/FC#4, but it is not necessarily limited depending on various conditions such as the type of paint and solvent, shape of the product to be coated and thickness of the coating film. Also it is recommended that before putting in paint, the paint resistance be measured.

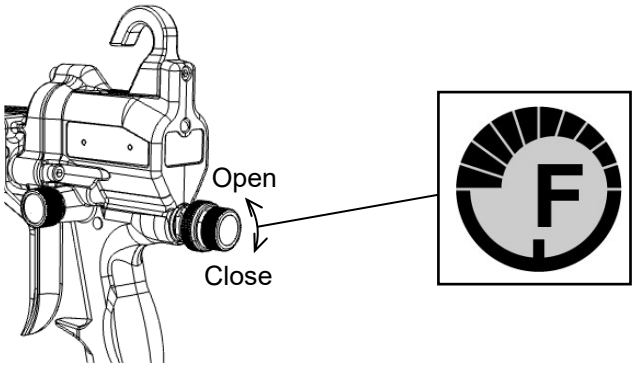
(2) Operate the paint feed unit to feed the paint into the gun.
Operate the pump at a low pressure (approximately 0.1 MPa) with the air regulator for the pump and suck the paint.
Adjust the paint regulator attached to the paint outlet of the pump so that the pump pressure will be increased to approximately 0.2–0.3 MPa.



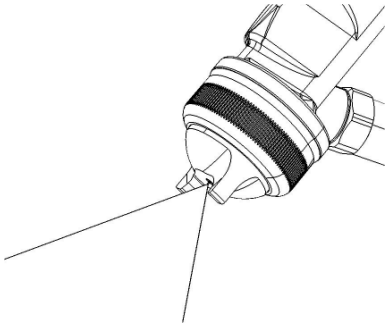
(3) Discharge paint through the gun tip.
Discharge paint through the gun tip by pulling the trigger with air not supplied to the gun. If air is remaining in the paint hose, it causes shortness of breath when paint is discharged; therefore, keep discharging paint until the air in the hose has been removed.

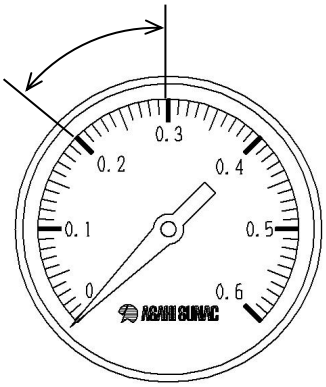


The paint discharge rate is increased by turning the paint adjuster at the back of the gun to the left. If it is tightened to the right, the rate will be decreased and the discharge will be stopped.

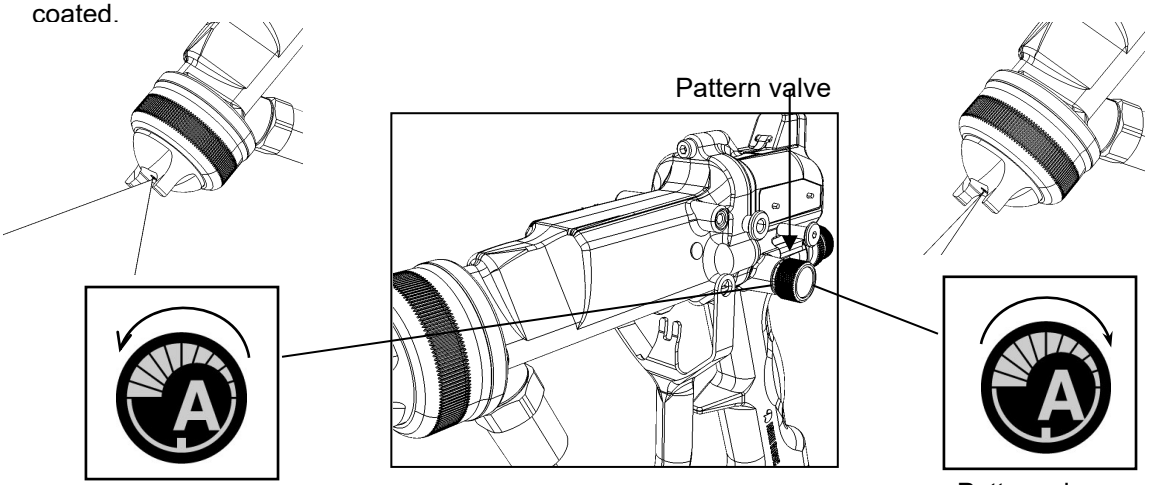


(4) Check the atomization state of the paint discharged from the gun.
Adjust the pressure of the air supplied to the gun to 0.2–0.3 MPa and atomize the paint by pulling the trigger.
Adjust the air pressure according to the air cap used.





(5) Adjust the pattern width of the atomized paint.
Adjust the pattern width with the pattern valve on the left side of the gun. If you turn it to the left, the pattern will be broadened; to the right, narrowed. Adjust it according to the shape of the product to be coated.



⚠ WARNING

Check that there is no air leakage when the connection of the air hose and trigger are returned.
If the power of the controller is turned on when air is discharged, high voltage will be generated even when a coating operation is not performed.

⚠ CAUTION

Before performing a coating operation, check that the contact resistance of the product to be coated is within the range of the following values.
●If product to be coated is metal: 1kΩ or less
●If product to be coated is plastic: 1MΩ or less

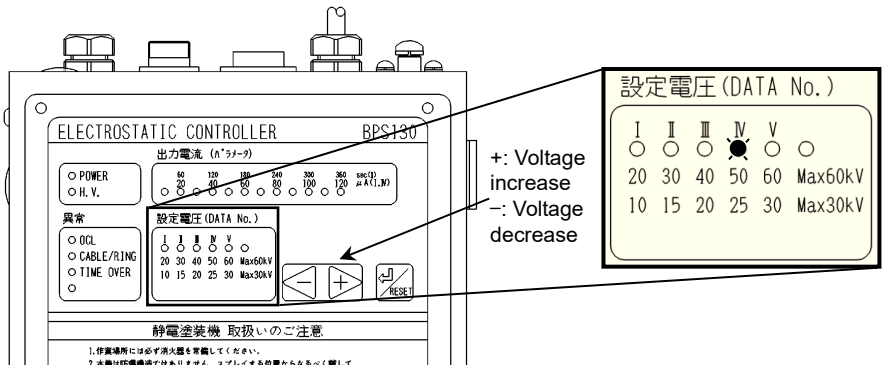
● Start of Coating Operation

(1) Turn on the power switch of the electrostatic controller.

⚠ CAUTION

Before turning on the power switch of the electrostatic controller, check the grounded condition of the grounding wire connected to the controller and product to be coated.

(2) Pull the trigger of the gun to start coating operation.
Adjust the voltage of the electrostatic controller according to the condition of the product to be coated.
When it is adjusted as shown in the following figure for the maximum set voltage of the equipment used, the voltage indicated at the lower part of the level lit is the set voltage.
*Following figure: When HB-X3 is used Set voltage = −25 kV



⚠ WARNING

<u>Sparks may be generated, possibly resulting in fire.</u>
Do not allow the electrode pin of the gun tip to contact a product to be coated. If the electrode pin approaches the grounded object, the electric potential of the pin will be controlled to be lowered automatically. However, if the approach speed is fast, sparks may be generated.

8 Maintenance and Inspection

Keep the gun, paint hose and connecting cable clean so that there will be no contamination such as paint. Also always be careful so that they will not be damaged due to mechanical shocks.

8.1 Measures After Operation is Completed

When suspending or finishing the coating operation, use the following procedure.

8.1.1 In Case Where Operation is Resumed Within 24 Hours

(1) Turn off the power switch of the electrostatic controller.
While holding the grip of the gun, turn off the power switch of the controller with the other hand.

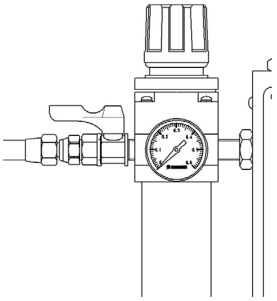
⚠ WARNING

<u>Sparks may be generated, possibly resulting in fire.</u>
Never leave the gun on a workbench or the ground with the power switch of the electrostatic controller turned on.

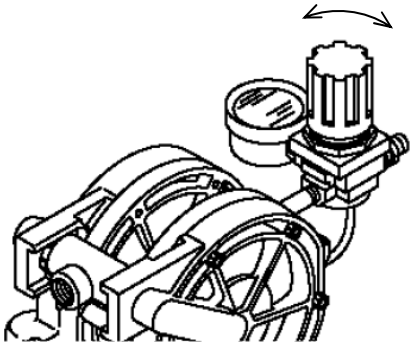
⚠ CAUTION

When the electric resistance of the paint is low (2 MΩ cm or less), high voltage is charged to the paint pump. Never touch the pump when high voltage is applied. Turn off the power switch of the electrostatic controller and ground it with a grounding bar before touching it or supplying paint.

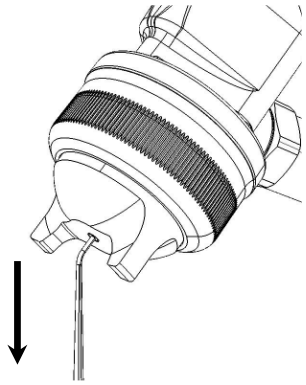
(2) Adjust the pressure of air supplied to the gun to 0 MPa.



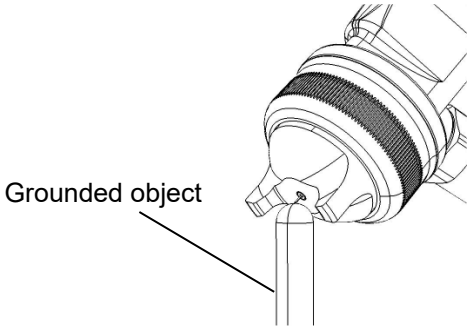
(3) Adjust these drive air pressure of the paint pressure-feed unit to 0 MPa.



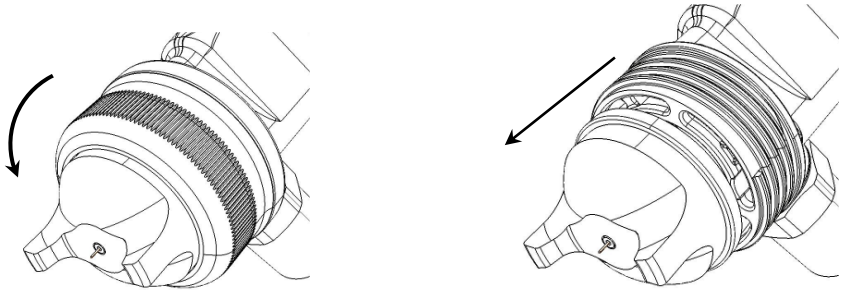
(4) Discharge paint through the gun tip to release the residual pressure.



(5) With the trigger opened to remove the residual charge, gently ground the electrode pin at the nozzle tip.



(6) Remove the retaining nut by turning to the left and air cap too.
When removing the air cap, tilt the gun tip downward so that thinner or solvent will not enter the gun.



⚠ CAUTION

When removing the air cap, be careful not to drop it.
If dropped, it may be damaged.

⚠ WARNING

<u>Personal injury and accidents may occur.</u>
When removing the air cap, do not touch the electrode pin.

⚠ CAUTION

<u>Damage of the retaining nut, nozzle and unit may occur.</u>

When removing the retaining nut, be sure to turn it by hand.
If you use a tool, damage may occur.

(7) Wipe off dirt such as paint mist attached to the gun, ground ring and air cap with a cloth impregnated with cleaning solvent.

⚠ CAUTION

When cleaning the gun, ground ring and air cap, do not use a hard brush such as a metal brush. Their surfaces may be damaged and their performance may be impaired.

⚠ CAUTION

When a coating operation is not performed, close the paint adjuster of the gun to prevent paint from being discharged due to a careless operation.

⚠ CAUTION

When cleaning the nozzle and air cap, always tilt the gun tip downward so that solvent will not enter the coating machine. After the cleaning, pull the trigger to release air to discharge the entered solvent.

⚠ CAUTION

After cleaning or an operation, do not allow the gun, power cable, hose, etc. to be immersed in solvent. Electric and electronic circuits are contained in the gun and a structure is employed where solvent does not enter when a normal usage method is used.
However, if they are immersed in solvent for a long time, their durability will be decreased, which may cause failures.

⚠ CAUTION

When using chemically hardened paint such as two-component paint or paint that settles easily, clean it based on "8.1.2 In Case Where Operation is Not Performed for 24 Hours or More" each time an operation has been completed.

8.1.2 In Case Where Operation is Not Performed for 24 Hours or More

(1) Turn off the power switch of the electrostatic controller.
(2) Adjust the pressure of air supplied to the gun to 0 MPa.
(3) Extract the suction pipe of the paint pump from the paint container.
(4) Drive the paint pump at a low pressure (approximately 0.1 MPa) and discharge the paint in the pump from the return side to the paint container.
(5) Discharge the paint remaining in the hose and gun through the gun tip by pulling the trigger of the gun.
(6) Suck the cleaning solvent through the suction pipe, discharge it from the return side to the cleaning wastewater container and repeat the cleaning until the inside of the pump is cleaned.
(7) Discharge the solvent through the gun tip to clean the hose and inside of the gun.
(8) Stop the pump and pull the trigger of the gun to release the residual pressure through the gun tip.
(9) Turn the retaining nut to the left to remove the air cap.
(10) Wipe off dirt such as paint mist attached to the gun, ground ring and air cap with a cloth impregnated with cleaning solvent.
(11) With the trigger of the gun pulled, put a dedicated spanner on HEX of the nozzle and turn it to remove the nozzle.

It is recommended to allow the cleaning fluid to remain in the circuit after cleaning to prevent fixation of paint remaining in the paint circuit.

⚠ CAUTION

Damage of the nozzle and needle may occur.
Be sure to remove the nozzle with the trigger of the gun pulled.
The seat surfaces of the nozzle and needle will be damaged and failures of the seat may occur.

⚠ CAUTION

Damage of the nozzle may occur.
When removing the nozzle, be sure to use the attached dedicated spanner.
Be careful not to drop it.

(12) Immerse the nozzle in cleaning solvent and blow off the dirt with compressed air.

⚠ CAUTION

When cleaning the nozzle, do not poke at it with metal such as wire.
Also do not use a metallic brush and the like. Its performance may be impaired due to enlargement of hole diameter and scratches.

⚠ CAUTION

Only after 10 seconds have passed since the power switch of the electrostatic controller is turned off, clean the gun. Ninety percent or more of fire accidents due to the electrostatic coating machine have occurred when the nozzle etc. is cleaned. When cleaning the nozzle etc., be sure to turn "OFF" the power switch. Keep a fire extinguisher at your hand in case of fire accidents.

⚠ CAUTION

If a problem occurs during an operation, immediately turn "OFF" the power switch of the electrostatic controller and lower the pressure of the air and paint supplied to the gun to 0 MPa.

⚠ CAUTION

Always hang the gun on the gun hanger fixed to a wall.

⚠ CAUTION

Be careful so that shocks such as falling will not be applied.
Plenty of plastics are used for HB-X3S/HB-X3M for weight saving.
They are designed taking into account strength but may be damaged due to shocks.

(13) As for disposal of cleaning wastewater, recover and recycle it using a solvent recovery system or dispose of it through a contracted industrial waste processor in accordance with the laws.

8.2 Periodic Inspection

In order to fully exercise the performance of this equipment, perform periodical inspection according to the following table.
The inspection timings are only shown as a guide and may vary depending on the conditions of use.

⚠ WARNING

<u>Personal injury and accidents may occur due to an unexpected operation of the coating machine.</u>
When conducting a periodic inspection, turn off the power of the electrostatic controller and release the pressure of the air and paint.

Item	Procedure	Period
Check external appearance of the gun body	If there is paint dirt, saturate a soft cloth or brush with cleaning solvent and wipe it off.	1 day
	If there is damage, replace with a new one.	
Check for air cap paint dirt	If there is paint dirt, saturate a soft cloth or brush with cleaning solvent and wipe it off.	
Check for clogging of air spray hole of air cap	After immersing in cleaning solvent, remove by blowing air.	
	If cannot be removed, replace with a new one.	
Check for scratches and dents around paint outlet of nozzle	If there are scratches and dents, replace with a new one.	
Check for clogging of paint spray hole of nozzle	After immersing in cleaning solvent, remove by blowing air.	
	If cannot be removed, replace with a new one.	
Check paint seat of nozzle	Inject cleaning solvent to clean the paint path and nozzle of the gun.	
	If the problem is not solved, replace the nozzle or needle electrode with a new one.	
Check needle electrode	If the distance from the paint spray hole of the nozzle is less than 3.5 mm with the trigger not pulled, replace with a new one.	
Check connecting cable	If there is damage, replace with a new one.	
Check air leakage from trigger	If there is air leakage, replace the air seat.	1 month
Check paint dirt in paint tube	If there is paint dirt, inject cleaning solvent to clean it.	
	If adhered paint cannot be removed, replace with a new one.	
Check paint valve	If the discharge rate cannot be adjusted, replace with a new one.	
Check pattern air valve	If the spray pattern cannot be adjusted, replace with a new one.	

⚠ CAUTION

When using the gun cover, replace it before it gets dirty.
In particular in the case of conductive paint such as metallic paint and water paint, high voltage is likely to leak through the paint attached to the gun cover and an overcurrent fault and electric shock to the operator may occur.
In such a case, stop using the gun cover.

NOTE

For parts replacement method, see "11. Parts Replacement Method".

⚠ CAUTION

Do not disassemble the gun unnecessarily except for the case of a failure.
To secure electric insulation of the gun and the sealing function, disassemble it only when the parts are replaced due to a failure.

⚠ CAUTION

The upper rear part of the gun may be warmed due to the heat of the high-voltage generator, but this is not a problem.

⚠ CAUTION

When using a container for cleaning, be sure to ground a conductive container.

8.3 Consumable parts

Prepare spare parts according to the conditions of use, referring to the rank classification in the following consumables list.

Rank classification	Part name	Part No.	Component assembly	Publishing page
A	Paint nozzle assembly	15F7	HB-X3S·M Core unit	43
	Needle electrode assembly	1706	HB-X3S·M Core unit	43
B	Packing assembly	14F5	HB-X3S·M Core unit	43
	Straight tube	14F7-002	Straight tube set	46
	Spiral tube	146A-101	Spiral tube set	46
	Sleeve	145A-005	Each tube set	46
	U seal	373-0008	HB-X3S·M Core unit	43
	U seal	373-0009	HB-X3S·M Core unit	43
	Ring seal	373-0010	Retaining nut assembly	46
C	Gun hook	12A1-002	HB-X3S·M	41·42
	Pattern valve	14C9	HB-X3S·M	41·42
	Paint adjuster	14E1	HB-X3S·M	41·42
	Stopper	14C3-003	Grip end assembly	44
	Air valve assembly	14C6	HB-X3S·M Core unit	43
	Needle assembly	14F4	HB-X3S·M Core unit	43
D	Packing	14F9-003	HB-X3S·M	43
	O-ring	130-6007	Pattern valve	45
	O-ring	101-6005	Grip end assembly	44
	O-ring	130-6010	Paint adjuster	45
	O-ring	130-6030	Grip end assembly	44
	O-ring	130-7010	Cascade assembly	44
	O-ring	130-9012	Paint nozzle assembly	45

Rank A: Daily consumable parts

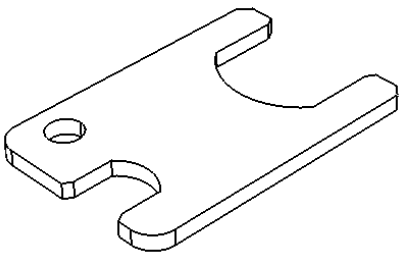
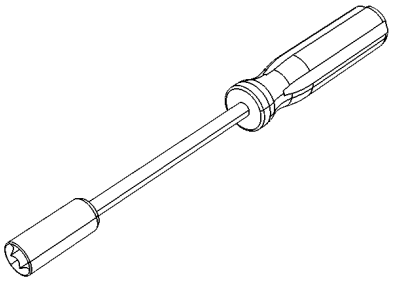
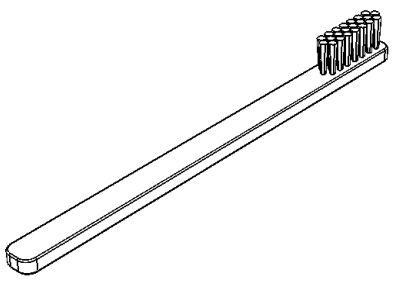
Rank B: Medium-term consumables

Rank C: Parts which may be damaged/lost when used

Rank D: Parts required to be replaced when disassembled

Accessory tool

35CF

Dedicated flat spanner Part No.: 35CF-001	Box spanner Part No.: 337-0056	Bamboo brash Part No.: 337-0006
		

9 Coating Problems and Solutions

Depending on the situation of a coating problem, several problematic phenomena and causes may occur at the same time.

Problematic phenomenon	Possible cause	Countermeasure
1. Atomization of spraying is bad	(1) Atomizing air pressure is too low	(1) Set atomizing air pressure to rather high
	(2) Paint discharge rate is too high	(2) Set discharge rate to rather low or atomizing air pressure to rather high
	(3) Viscosity is too high	(3) Decrease paint viscosity
	(4) Nozzle tip pin is bent	(4) Replace needle electrode assembly
	(5) Nozzle is damaged	(5) Replace paint nozzle assembly
	(6) Solvent is inappropriate	(6) Please consult us or paint manufacturer
2. Much paint splashes back	(1) Spraying distance is too long	(1) Spraying distance should be within 150 to 200 mm
	(2) Atomizing air pressure is too high	(2) Adjust atomizing air pressure to rather low
	(3) Paint resistance is too low	(3) Adjust paint resistance to 15 to70 MΩ-cm.
	(4) Grounding of product to be coated is inappropriate	(4) Ground perfectly
	(5) Exhaust velocity is too slow	(5) Set exhaust velocity to rather fast
3. Coating efficiency is low	(1) Grounding of product to be coated is poor	(1) Clean paint attached to hanger and ground perfectly
	(2) Atomizing air pressure is too high	(2) Adjust atomizing air pressure to appropriate pressure
	(3) Spraying distance is too long	(3) Spraying distance should be within 150 to 200 mm.
	(4) Operating voltage is low	(4) Increase output with output voltage adjustment switch of electrostatic controller
	(5) Booth supply and exhaust rate is too high	(5) Adjust booth supply and exhaust rate to rather low
	(6) Electric resistance of paint is too high	(6) Adjust resistance to 15 to 70 MΩ-cm
4. Paint is attached to nozzle, which causes roughening, or string like particles are created on product to be coated	(1) Evaporation rate of solvent is too high	(1) Replace with solvent whose evaporation rate is low or adjust with additives
	(2) Viscosity of paint is high	(2) Decrease viscosity of paint
5. Particles are created on coated surface	(1) Atomization of spraying is bad	(1) See Section 1 in this chapter "Atomization of spraying is bad"
	(2) There is plenty of dirt in coating booth and dirt is attached to coated surface	(2) Install dust-proof filter on suction part of coating booth to remove dirt on coated surface
	(3) Atomizing air is dirty	(3) Clean or replace filter at air passage
	(4) Pigment dispersion of paint is bad	(4) Review solvent or filter paint well
6. Orange peel (dapple, pockmark) is created	(1) Temperature is high in coating booth or evaporation rate of solvent is high	(1) Adjust temperature or replace with solvent whose evaporation rate is low
	(2) Temperature of product to be coated is too high	(2) To lower temperature of product to be coated, adjust drying furnace
	(3) Supply and exhaust rate is too high	(3) Adjust to 0.5 to1.0 m/sec on product surface to be coated
7. Cissing occurs	(1) Cleaning of product to be coated is insufficient	(1) Clean or defat sufficiently
	(2) Atomizing air is dirty	(2) Clean or replace filter at air passage
	(3) Exhaust of baking furnace is inappropriate	(3) Exhaust air sufficiently

Problematic phenomenon	Possible cause	Countermeasure
8. Paint trickles down on coated surface	(1) Coating film is too thick	(1) Decrease paint discharge rate or increase operation speed of hand gun
	(2) Viscosity of paint is too low	(2) Increase paint viscosity
	(3) Evaporation rate of solvent is low	(3) Replace with solvent whose evaporation rate is high
9. Coating film is translucent	(1) Paint discharge rate is low	(1) Adjust paint discharge rate and consider operation speed of hand gun and recoating
	(2) Viscosity of paint is too low	(2) Increase viscosity
10. Pin holes (small holes) are created	(1) Atomizing air is dirty	(1) Clean or replace filter at air passage
	(2) Evaporation rate of solvent is too high	(2) Replace with solvent whose evaporation rate is low
	(3) Temperature of product to be coated is high	(3) Lower temperature
	(4) Drying of undercoating is insufficient	(4) Dry sufficiently
	(5) Setting time is short	(5) Take sufficient setting time
11. Whitening occurs	(1) Temperature and humidity are high inside/outside coating booth	(1) Replace with solvent whose evaporation rate is low Or check air conditioner
	(2) Selection of solvent is inappropriate	(2) Please consult us or paint/solvent manufacturer
12. Foaming occurs	(1) Atomizing air is dirty	(1) Clean or replace filter at air passage
	(2) Drying after wet rubbing is insufficient	(2) Dry sufficiently
	(3) Coating film is too thick	(3) Set paint discharge rate to rather low
	(4) Evaporation rate of solvent is too high	(4) Replace with solvent whose evaporation rate is low
	(5) Temperature of baking furnace is too high	(5) Adjust temperature to appropriate value
13. Pattern shape is not good	(1) Paint and dirt are attached to atomizing air and paint spray hole of nozzle	(1) Clean well with thinner and bamboo brush and filter paint
	(2) Viscosity of paint is high	(2) Decrease viscosity
	(3) Nozzle tip is damaged	(3) Repair or replace
	(4) Pattern adjustment is bad	(4) Adjust with pattern adjustment knob
	(5) Nozzle attachment is bad	(5) Check paint nozzle assembly is not loosened and attach air cap
14. The amount of paint sprayed is not stabilized.	(1) The needle stroke length is short. * It is recommended that the needle stroke length be 1 mm or more for use.	(1) Decrease the paint injection pressure and increase the needle stroke length.
		(2) Install an orifice etc. in the paint path and increase the needle stroke length.

10 Troubleshooting

More than one phenomenon or cause may occur at the same time, depending on the failure situation.

Phenomena of failure	Possible cause	Countermeasure
1. Discharge of paint is unstable, which causes shortness of breath during coating	(1) Tightening of paint nozzle assembly is insufficient	(1) Sufficiently tighten paint nozzle assembly
	(2) Seat surface of paint nozzle assembly is damaged	(2) Replace paint nozzle assembly
	(3) Air is mixed in paint	(3) Check paint feeder system
	(4) Paint discharge rate is extremely low	(4) Increase paint discharge rate or decrease atomizing air pressure
2. Paint discharge rate is low	(1) Abnormality of paint pressure-feed system	(1) Check paint feeder system such as paint pump and paint regulator
	(2) Paint seat part is clogged with lump of paint and dirt	(2) Clean paint seat part
	(3) Paint and dirt are attached to paint nozzle assembly	(3) Remove and clean paint nozzle assembly
3. Paint leaks from nozzle	(1) Paint seat part is clogged with lump of paint and dirt	(1) Clean paint seat part
	(2) Wear and chipping of paint seat part	(2) Replace paint nozzle assembly or needle electrode assembly
	(3) Deterioration of paint shaft spring	(3) Replace spring
	(4) Pressure-feed pressure of paint is too high	(4) Decrease pressure-feed pressure
4. Paint leaks from U seal part	(1) Wear of packing assembly	(1) Replace packing assembly
	(2) Tightening of packing assembly is insufficient	(2) Attach packing assembly properly
	(3) O-ring of packing assembly is damaged	(3) Replace O-ring of packing assembly
5. Even if trigger is returned, air leaks from nozzle part	(1) Seat part of air valve assembly is clogged with dirt	(1) Clean or replace air valve assembly
	(2) Wear of air valve assembly	(2) Replace air valve assembly
	(3) Deterioration of spring	(3) Replace spring
6. Air leaks from air adjuster	(1) O-ring is worn, damaged	(1) Replace O-ring

Phenomena of failure	Possible cause	Countermeasure
7. Sparks are generated form nozzle part	(1) Cascade assembly was damaged	(1) Replace cascade assembly
8. Alarm buzzer of control unit goes off	(1) Paint is attached to barrel	(1) Clean barrel
	(2) Paint is attached to paint tube	(2) Clean paint hose
	(3) Water has accumulated in air passage in barrel	(3) Sufficiently perform drain discharge in air line. Turn off the power of electrostatic controller, release air by pulling trigger and completely discharge water in air passage
	(4) Paint whose electric resistance is low or metallic paint is used	(4) Modify to M specifications and decrease the set voltage
	(5) Paint leaks due to packing assembly damage or wear	(5) Replace packing assembly or O-ring with new one
	(6) Ground ring is not attached. Or insulator is attached to ground ring connection part	(6) Clean connection part between ground ring and barrel and attach ground ring

⚠ CAUTION

Do not perform repair other than the method indicated in this Operation and Maintenance Manual

11 Parts Replacement Method

Follow the procedures below when replacing or repairing parts.

⚠ WARNING

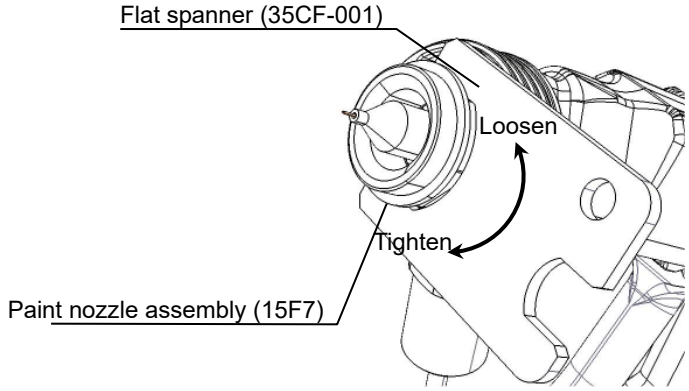
Personal injury and accidents may occur due to an unexpected operation of the coating machine.
Before replacement and repair of parts, be sure to turn off the compressed air supplied to the gun, turn off the power of the electrostatic controller, discharge the paint in the paint passage and clean it.

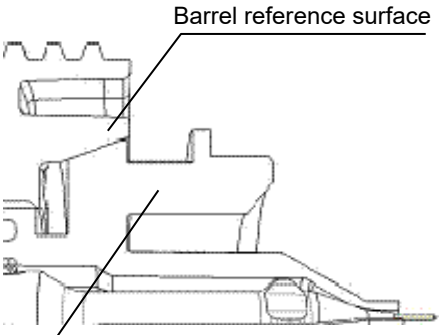
11.1 Replacement of Air Cap

(1) In accordance with "4.7 Installation of Air Cap" in Chapter 4 "Unit Installation", remove and replace it.

11.2 Replacement of Paint Nozzle Assembly

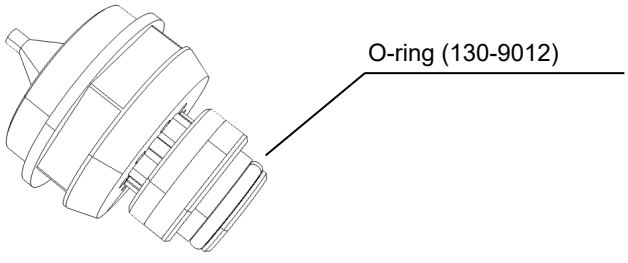
(1) Replace it by stopping the paint pump, using a flat spanner (accessory tool) while pulling the trigger with the residual pressure released and removing the nozzle.





Position of entrance by 1 mm to barrel reference surface is regular position

(2) If the O-ring (130-9012) is damaged when removing the paint nozzle assembly, replace it.

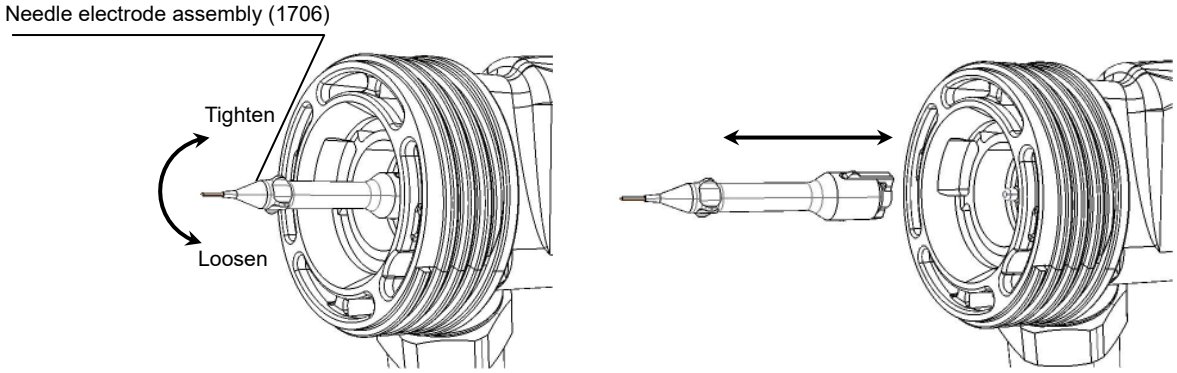


⚠ CAUTION

Confirm are not paint clinging, scar and dirt in the screw of the barrel and the paint nozzle when install the paint nozzle. Becomes impossible for paint to leak, and to remove the paint nozzle due to the screw and dirt.

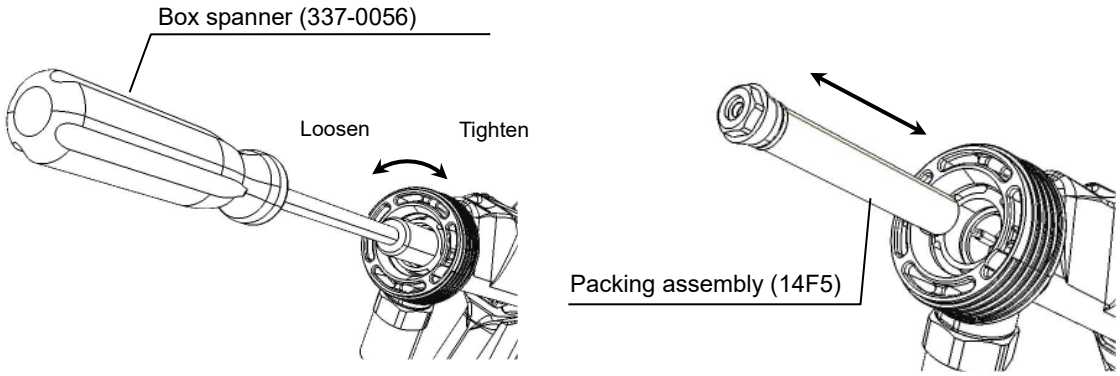
11.3 Replacement of Needle Electrode Assembly

(1) Remove and replace it by holding the needle electrode assembly with fingers with the trigger pulled. Also when attaching it, tighten it by holding the needle electrode assembly with fingers with the trigger pulled.
Do not tighten it too tight because it is a plastic part.



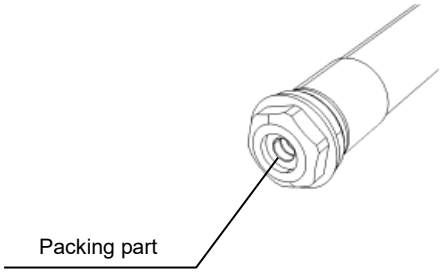
11.4 Replacement of Packing Assembly

(1) Remove and replace the packing assembly using the box spanner (accessory tool) with the needle electrode assembly removed. When attaching the packing assembly, do not tighten it too tight because it is a plastic part. Tighten guid : 90° after O-Ring begins work.
* Recommended tightening torque = 50 cN•m



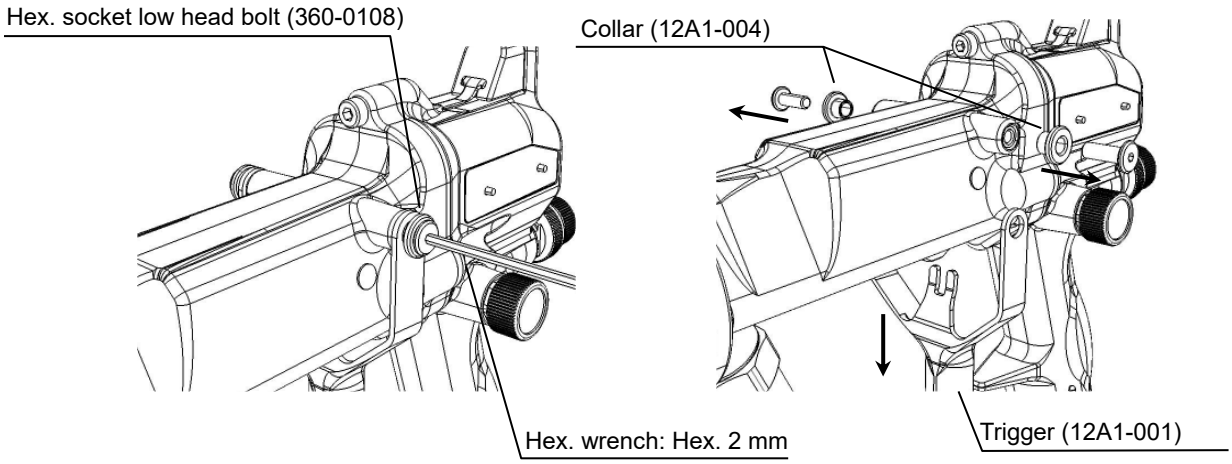
* Loosen packing Assy with Box spanner and pulling trigger few times will help to release easily.

(2) When cleaning the inside of the packing assembly, clean the entire part with thinner without disassembling the inside, and after cleaning, completely dry it by blowing air.
* Since the packing part is set with controlled load, do not remove it. If the packing part is damaged, replace it with the packing assembly.

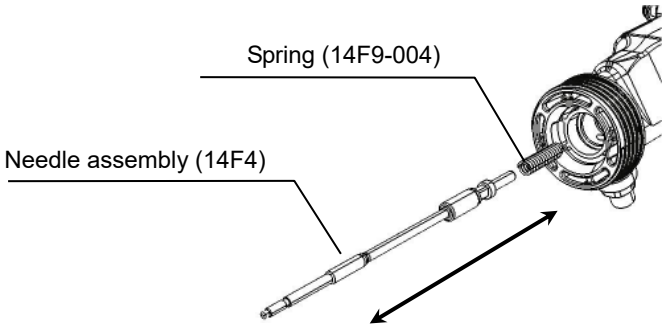


11.5 Replacement of Needle Assembly

(1) Remove the hex. socket low head bolt fixing the trigger using a hex. wrench of hex. 2 mm and extract the trigger downward. In this case, to prevent the collar holding the hex. socket low head bolt from being dropped/lost, take loss prevention measures.

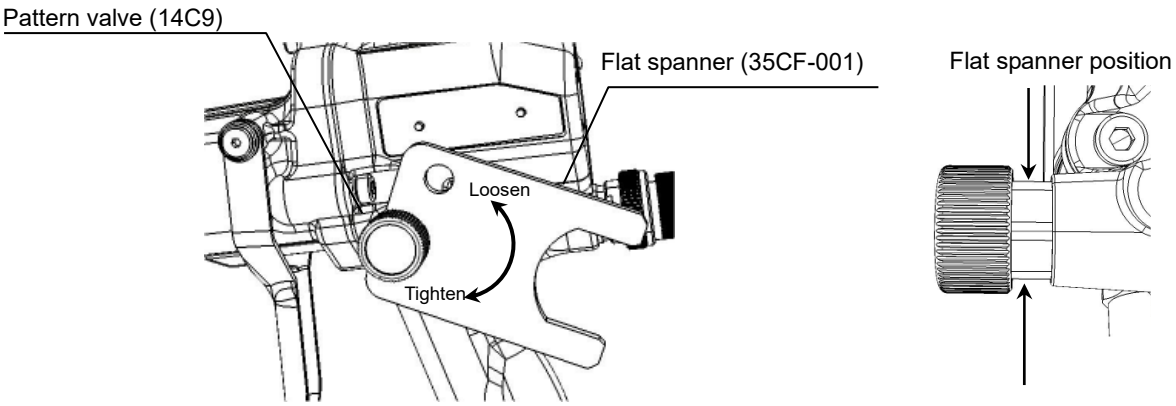


(2) Extract and replace the needle assembly from the barrel with the needle electrode assembly and packing assembly removed as shown in the figure.
In this case, to prevent the spring from being dropped/lost, take loss prevention measures.

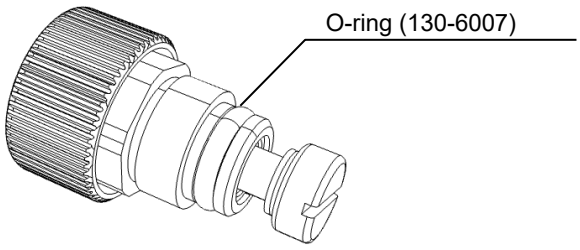


11.6 Replacement of Pattern Valve

(1) Remove and replace the pattern valve using a flat spanner (accessory tool) with the pattern valve fully opened.

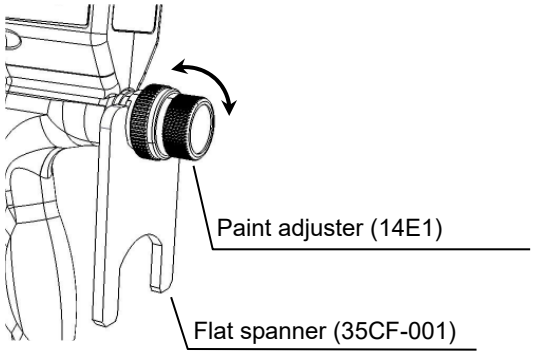


(2) When removing the pattern valve, be sure to replace the O-ring (130-6007).
It is recommended to apply white petrolatum to the screw part and O-ring part when attaching it.

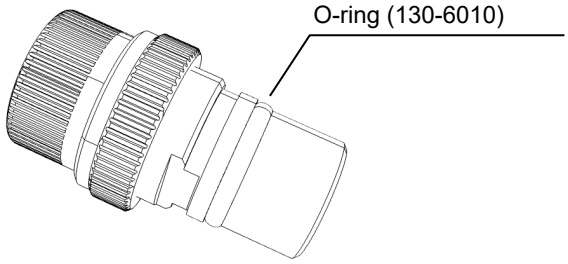


11.7 Replacement of Paint A

(1) Remove and replace the paint adjuster using a flat spanner (accessory tool).

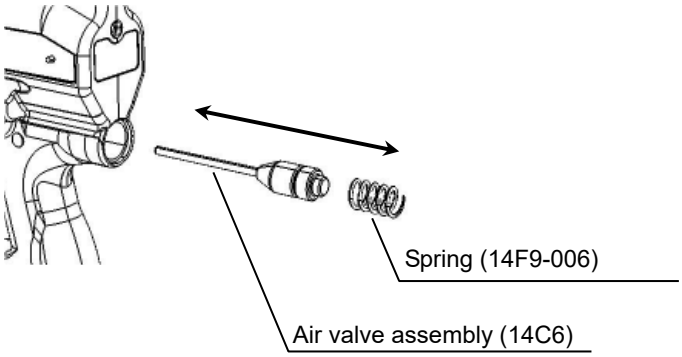


(2) When removing the paint adjuster, be sure to replace the O-ring (130-6010).
It is recommended to apply white petrolatum to the screw part and O-ring part when attaching it.



11.8 Replacement of Air Valve Assembly

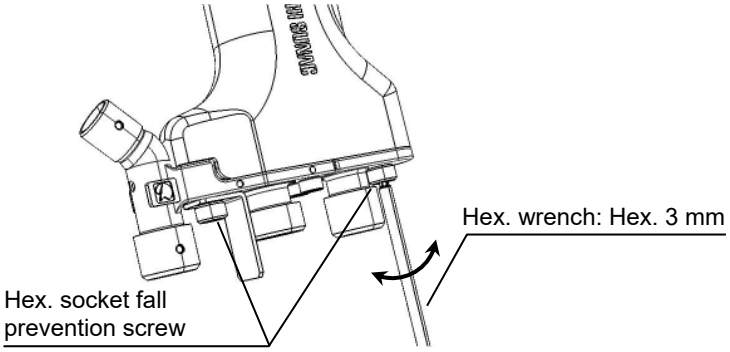
(1) Extract and replace the air valve assembly using longnose pliers by extracting the spring with the paint adjuster removed.



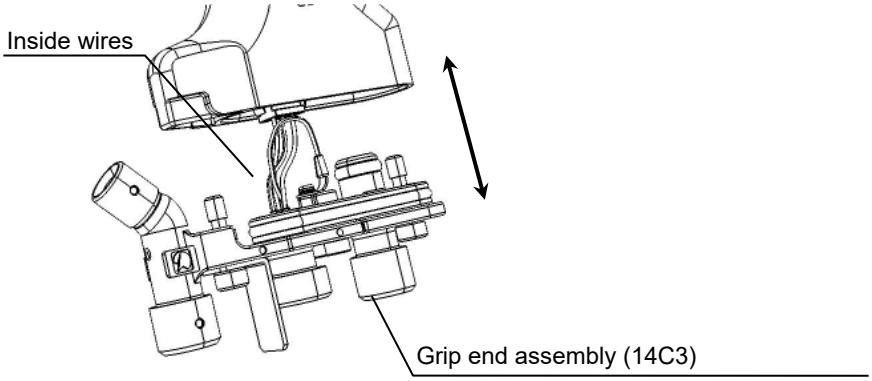
(2) Installation the paint adjuster after installs air valve assembly and tighten in addition after completely close. The seat becomes harmonize, and the seat improves.
Completely open the paint adjuster, turn on air, and confirm whether air leaks gun head.

11.9 Replacement of Grip End Assembly

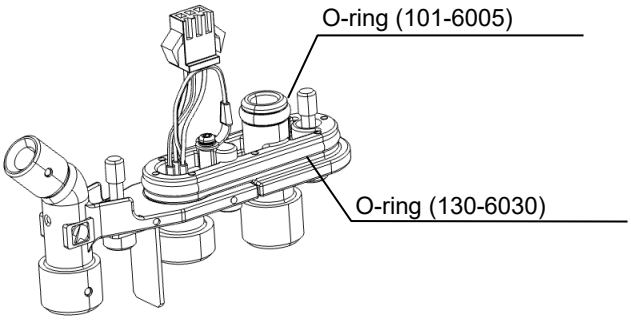
(1) Loosen the two hex. socket fall prevention screws at the grip end part using a hex. wrench of hex. 3 mm.
* Recommended tightening torque = 100 cN•m



(2) Loosen the hex. socket fall prevention screws and slowly extract the grip end assembly from the body assembly. If it is extracted swiftly, the inside wires may be disconnected.

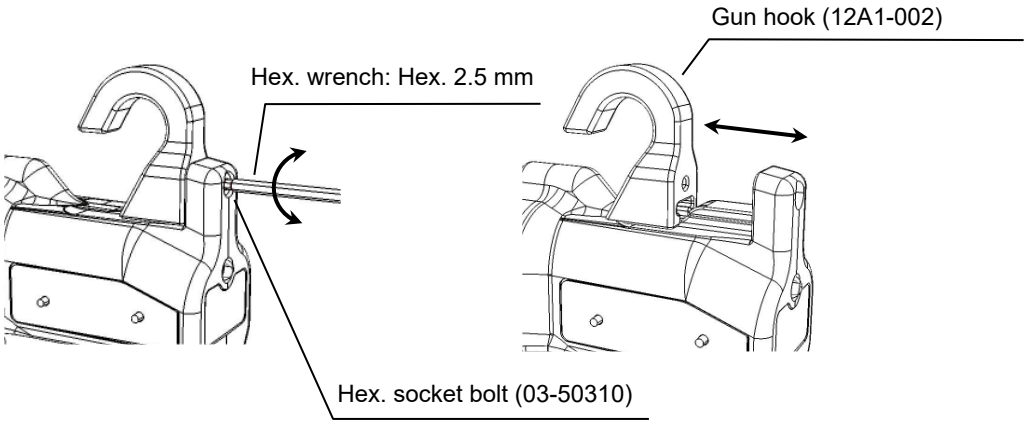


(3) When removing the grip end assembly, be sure to replace the O-ring (101-6005/130-6030).



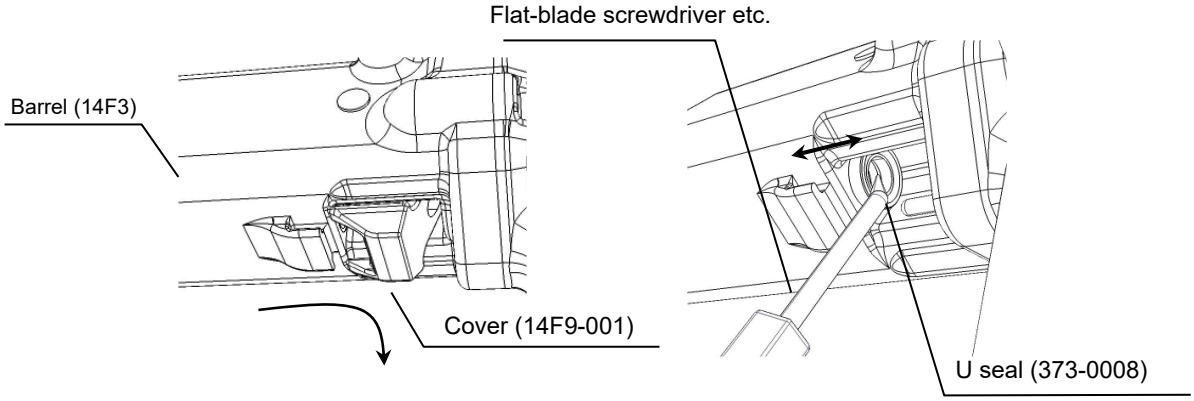
11.10 Replacement of Gun Hook

(1) Remove the hex. socket bolt (03-50310) fixing the gun hook using a hex. wrench of hex. 2.5 mm and extract the gun hook slide-fixed to the body assembly in the direction of the arrow to remove and replace it.



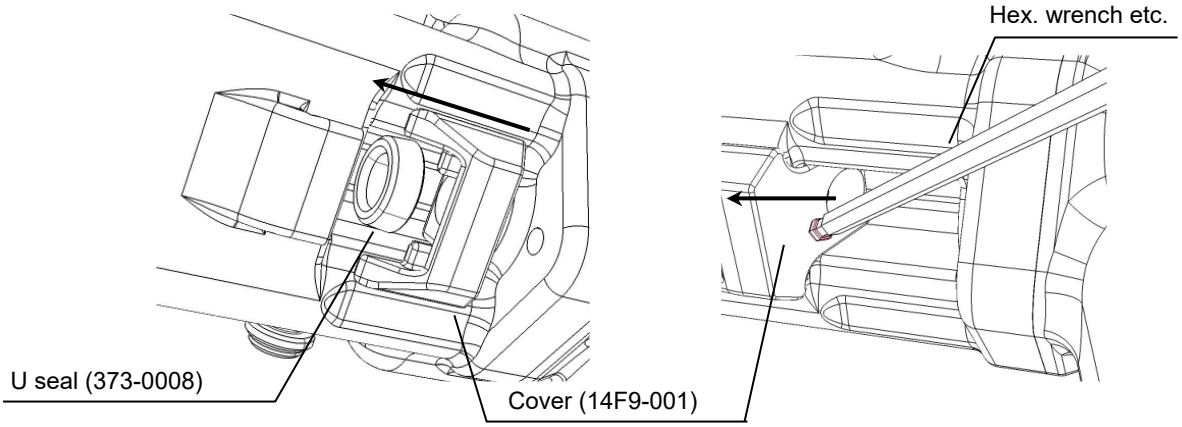
11.11 Replacement of U Seal (373-0008)

(1) Replace the U seal by removing the cover slide-fixed to the barrel in the direction of the arrow with the trigger and needle assembly removed. Since the U seal is firmly fixed to the barrel, remove it with a flat-blade screwdriver etc. If removed, the U seal may be deformed/damaged, so be sure to replace it.



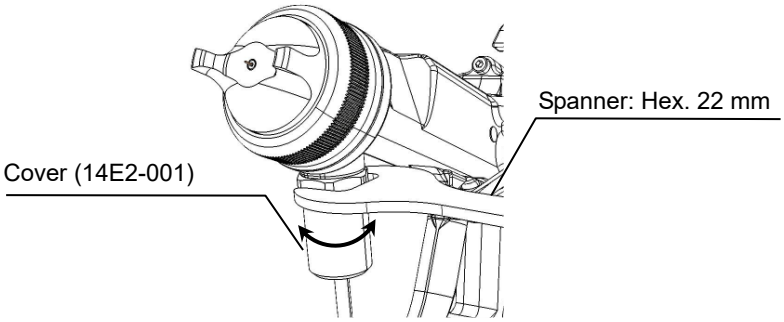
(2) Attach the U seal by pressing the cover with a hex. wrench etc.

* If only the U seal is pressed, the lip part may be deformed or damaged.

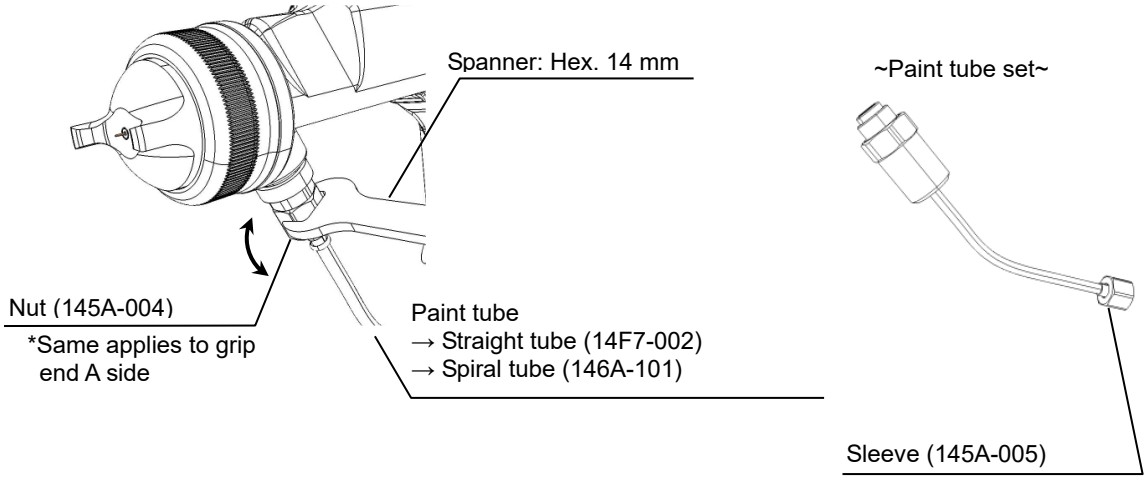


11.12 Replacement of Paint Tube (S/M Type)

(1) Loosen the cover using a spanner of hex. 22 mm.



(2) Loosen the two nuts using a spanner of hex. 14 mm to replace the paint tube.
When replacing the paint tube, be sure to replace the two sleeves too to prevent paint leakage.

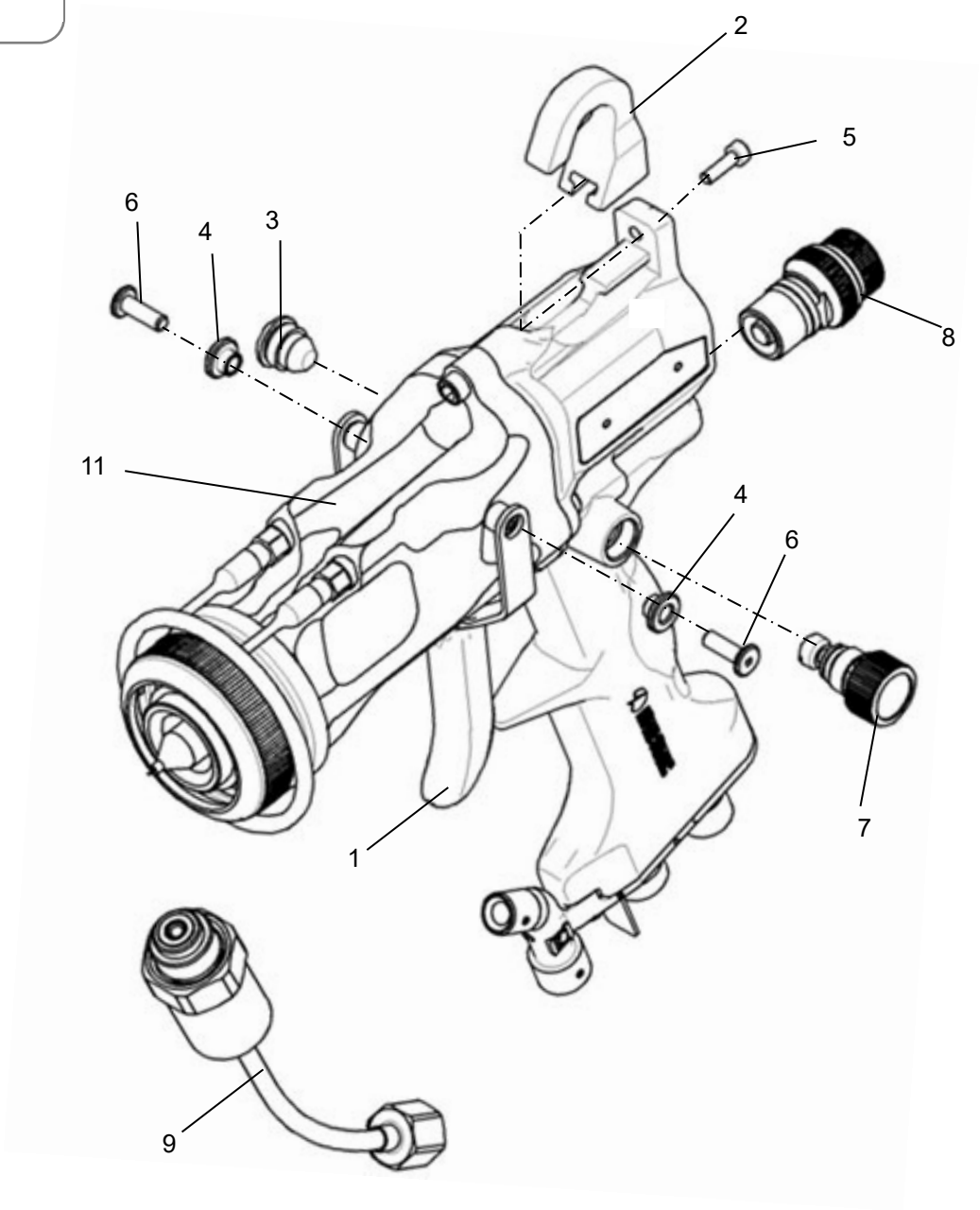


12 Component parts

12.1 HB-X3S

HB-X3S

12A6



No.	Part No.	Part name	Quantity	Remarks
1	12A1-001	Trigger	1	
2	12A1-002	Gun hook	1	
3	12C5-003	Plug	1	
4	12A1-004	Collar	2	
5	03-50310	Hex socket bolt	1	
6	360-0108	Hex socket low head bolt	2	

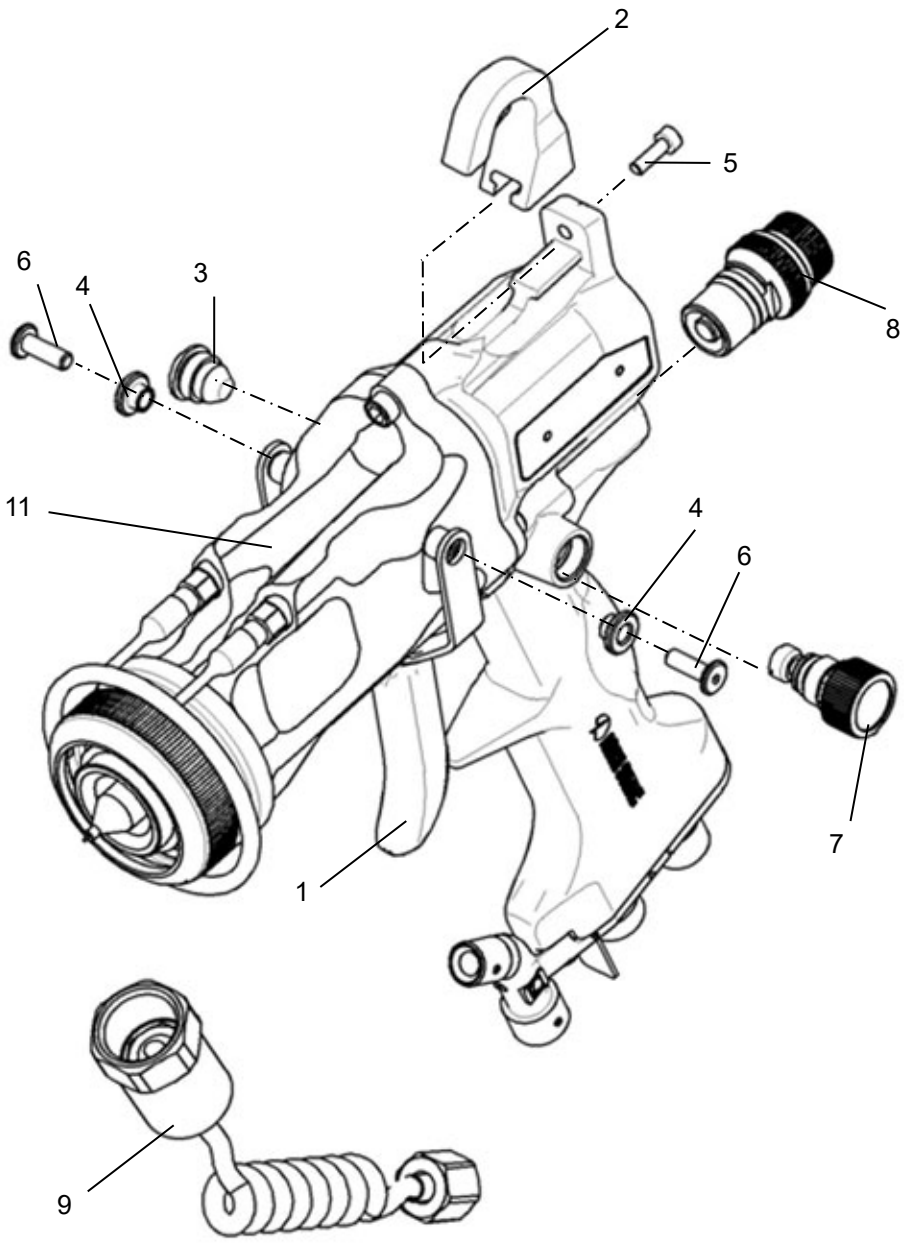
No.	Part No.	Part name	Quantity	Remarks
7	14C9	Pattern valve	1	
8	14E1	Paint adjuster	1	
9	14F7	Straight tube set	1	
10	Nil			
11	-	Core unit	1	*
12	35CF	Accessory tool	1	

* Can not order with core unit only.

12.2 HB-X3M

HB-X3M

12A7



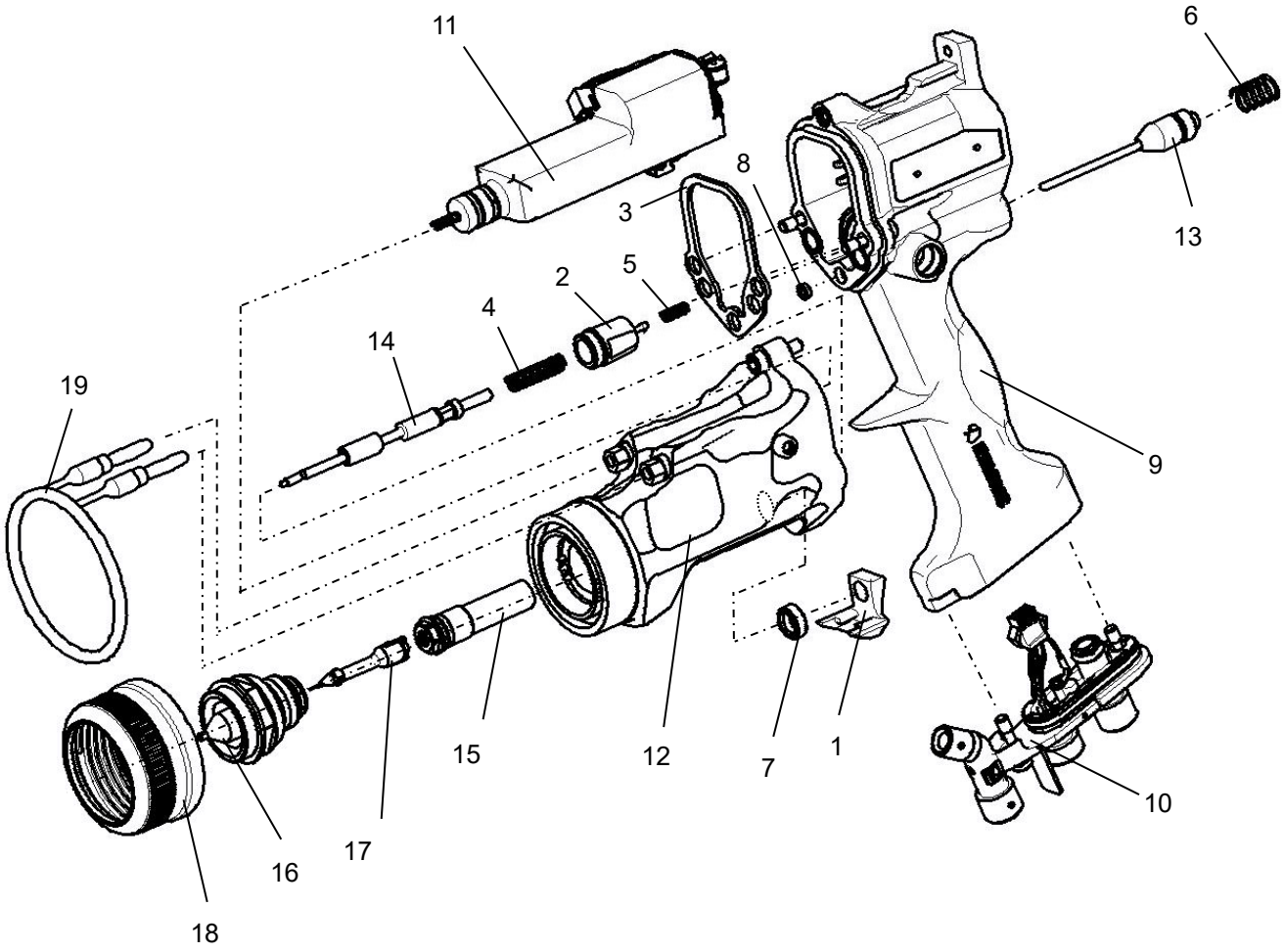
No.	Part No.	Part name	Quantity	Remarks
1	12A1-001	Trigger	1	
2	12A1-002	Gun hook	1	
3	12C5-003	Plug	1	
4	12A1-004	Collar	2	
5	03-50310	Hex socket bolt	1	
6	360-0108	Hex socket low head bolt	2	

No.	Part No.	Part name	Quantity	Remarks
7	14C9	Pattern valve	1	
8	14E1	Paint adjuster	1	
9	14F8	Spiral tube set	1	
10	Nil			
11	-	Core unit	1	*
12	35CF	Accessory tool	1	

* Can not order with core unit only.

12.3 HB-X3S/HB-X3M Core Unit

Core unit
-



No.	Part No.	Part name	Quantity	Remarks
1	14F9-001	Cover	1	
2	14F9-002	Contact	1	
3	14F9-003	Packing	1	
4	14F9-004	Spring	1	
5	14F9-005	Spring	1	
6	14F9-006	Spring	1	
7	373-0008	U seal	1	
8	373-0009	U seal	1	
9	14C2-2	Body assembly	1	For repair
10	14C3	Grip end assembly	1	

No.	Part No.	Part name	Quantity	Remarks
11	14F2	Cascade assembly	1	
12	14F3	Barrel	1	
*13	14C6	Air valve assembly	1	
*14	14F4	Needle assembly	1	
15	14F5	Packing assembly	1	
16	15F7	Paint nozzle assembly	1	
*17	1706	Needle electrode assembly	1	
18	1707	Retaining nut assembly	1	
19	14F6	Ground ring assembly	1	

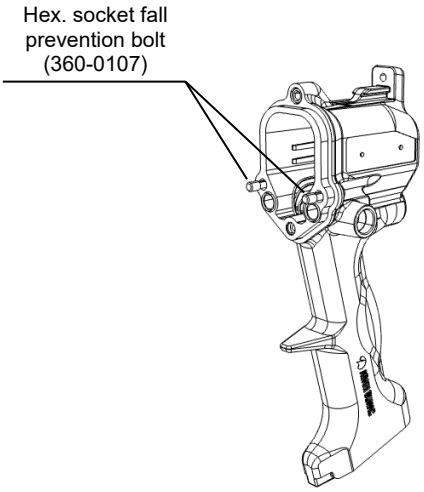
Items marked with * are the parts, replace with assembly parts.

12.4 Replacement Parts

The following are the replaceable parts in the parts assembly.
Parts not indicated should be replaced in assembly units.

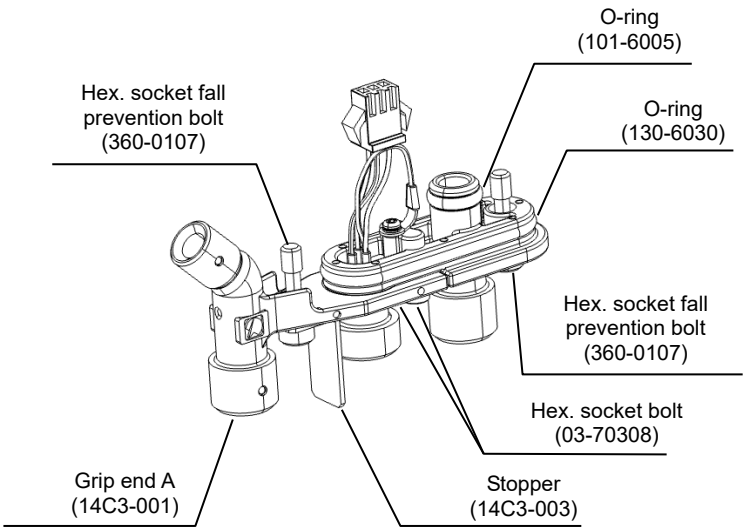
Body assembly

14C2-2



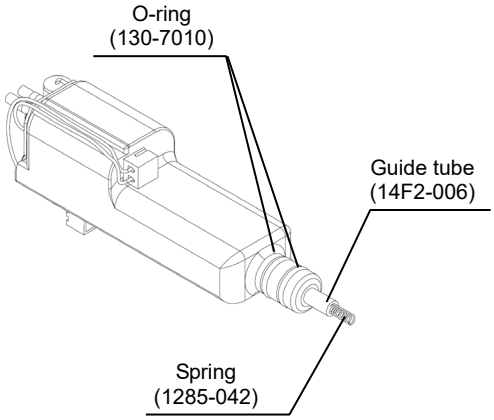
Grip end assembly

14C3



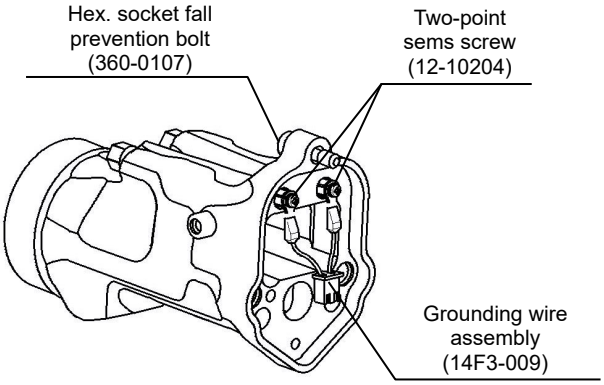
Cascade assembly

14F2



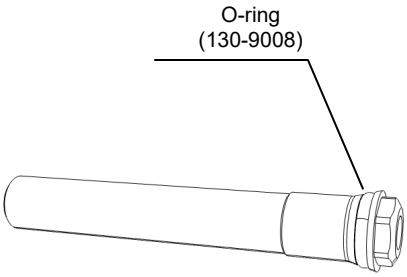
Barrel

14F3



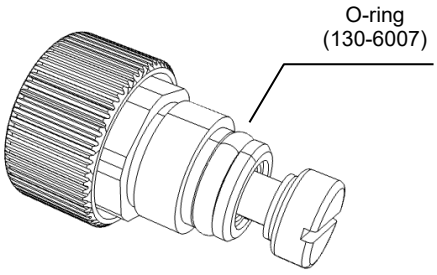
Packing assembly

14F5



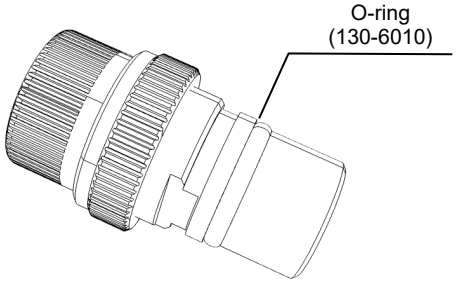
Pattern valve

14C9



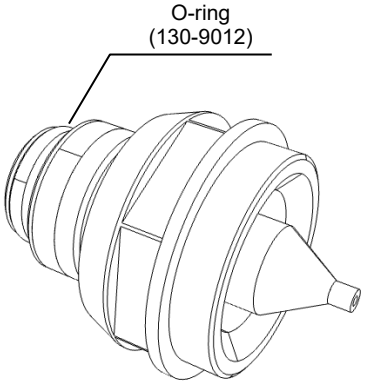
Paint adjuster

14E1



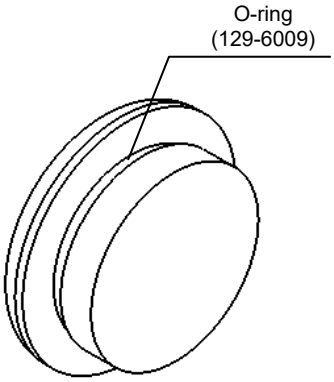
Paint nozzle assembly

15F7



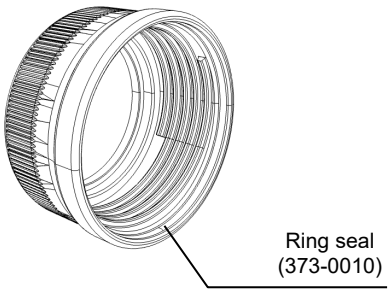
Plug

12C5-003



Retaining nut assembly

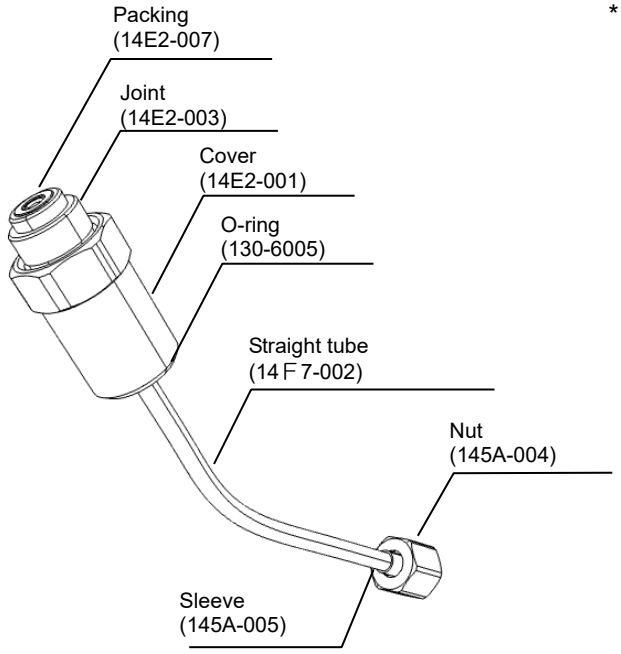
1707



* When Ring seal is removed from Retaining nut, Please replace to newone.

Straight tube set

14F7

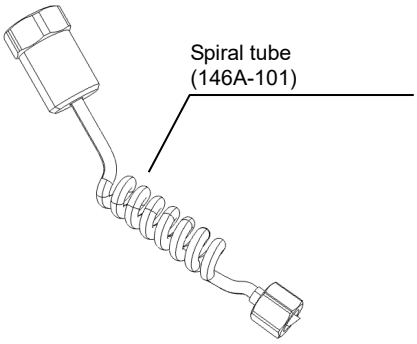


Spiral tube set

14F8

~In case of spiral tube set (14F8)~

* Contents are same as those of straight tube set except for spiral tube



13 Maintenance Log

Please use record the details that you conduct a maintenance service, such as replacement of a part, tear-down cleaning, post-failure repair, etc.

Equipment name			Air Electrostatic Handgun <HB-X3S/HB-X3M>		Purchase date:	
Date of service			Portion worked on	Description	Result	Who serviced
						In-house / Dealer / Asahi Sunac
						In-house / Dealer / Asahi Sunac
						In-house / Dealer / Asahi Sunac
						In-house / Dealer / Asahi Sunac
						In-house / Dealer / Asahi Sunac

Note: Due to continuous improvements and modifications, the configurations specified herein are subject to change without prior notice.

14 Warranty

ASAHI SUNAC CORPORATION (the “Company”) shall provide the original purchaser (the “Purchaser”) with warranty service for a period of one (1) year from the date of purchase of the product, as follows:

- Should you find defects in design or workmanship with regard to parts, ship them back to the Company, with freight prepaid. The Company shall repair or replace the parts free of charge and reimburse the freight charges, provided that, as a result of an inspection and investigation of the parts conducted by the Company, the defects are deemed to be to attributable to the factors within the Company’s responsibility.

- In the following cases, free after-sales service is not provided.

  1. Failure resulting from an inappropriate method of installing this equipment.
  2. Failure resulting from a use method not conforming to this instruction manual or mishandling.
  3. Failure resulting from insufficient maintenance management of this equipment and incorrect handling such as non-conformance to the procedures specified in this instruction manual.
  4. Failure resulting from unauthorized alteration or structure change of this equipment without the Company’s consent.
  5. Failure due to force majeure such as earthquake, disaster, flood disaster or lightening.
  6. Warranty for consumables worn or deteriorated even in the case where this equipment is used correctly.
  7. Repair after the machine has been used outside Japan, and shipping cost.
  8. In addition to the above, failure due to circumstances beyond our control.

- As for items such as parts purchased by the Company from another manufacturer, the warranty of that manufacturer shall apply.

- As for any parts deemed to be defective, the Company shall not be held liable for any expenses beyond the provision of repair or replacement parts free of charge.

- The Company shall not be held liable for any damage to the Purchaser caused by factors not attributable to the Company, such as misuse of product, etc.

- When a transfer of title of this equipment takes place, please see to it that this Operation and Maintenance Manual is handed over to the new owner.
- This equipment is manufactured in compliance with the Laws and Regulations of Japan.
  In the rare eventuality of this equipment being used outside Japan, compliance with the safety standards of the relevant countries is of course mandatory.

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ASAHI SUNAC CORPORATION

HEAD OFFICE
5050, SHINDENBORA, ASAHIMAE-CHO,
OWARIASAHI, AICHI PREF. 488-0852, JAPAN
PHONE +81-561-52-0717 FAX +81-561-54-8847

URL : www.sunac.co.jp
E-mail : ctrd01@sunac.co.jp

Sales office

English Chinese

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