

Operation and Maintenance Manual

Automatic Electrostatic Air Spray Gun
Robogun III

EAB400



This manual contains important information on warnings and cautions. Read the manual thoroughly before starting to operate the equipment, and follow the instructions. Always keep the manual handy until such time as the equipment 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.

Introduction

Thank you for purchasing our product automatic electrostatic air spray gun Robogun III < EAB400>.

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 (BPS260).

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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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 an automatic spray gun designed to be installed in the coating booth equipped with an exhaust system and used for painting with air electrostatic atomization paint.

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**

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.
Connect the earth wire with screws or other fasteners to prevent it from coming loose.

 **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**

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 approach and touch the gun body 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.



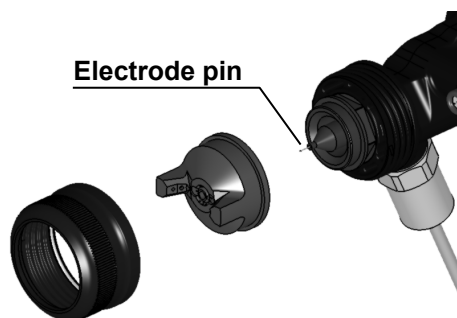
Protection from solvents, air and paint pressure

- **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.
- **Never use a metal brush to clean the sprayer or its components.**
It may cause scratches, breakdowns, and poor coating results.
The nozzle and electrode are important parts of the sprayer.
If you use a metal brush to scratch it, uniform coating will not be possible.
- **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.

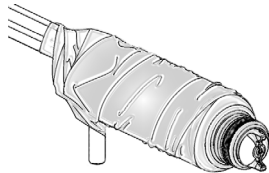


《Warning and precautions for safe use》

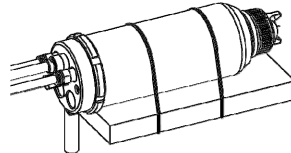
 **WARNING**

• **Do not install it like following.**

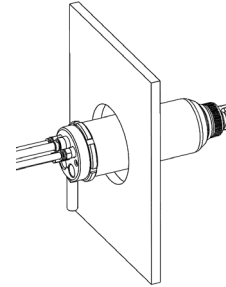
Electrostatic guns apply high voltage to the tip of the gun and the rear is earthed, make sure there are no obstacles on the main body (insulated part).



① If the gun is used with the dirt-proof sheet wrapped around it, moisture will accumulate inside, causing an overcurrent error.



② If a metal plate is attached close to the gun body, insulation breakdown may occur between the charged part of the gun and the plate.



③ If the gun body is inserted through a hole in a metal plate, insulation breakdown may occur, just as in ②.

● **A fire extinguisher should always be kept near the work area.**

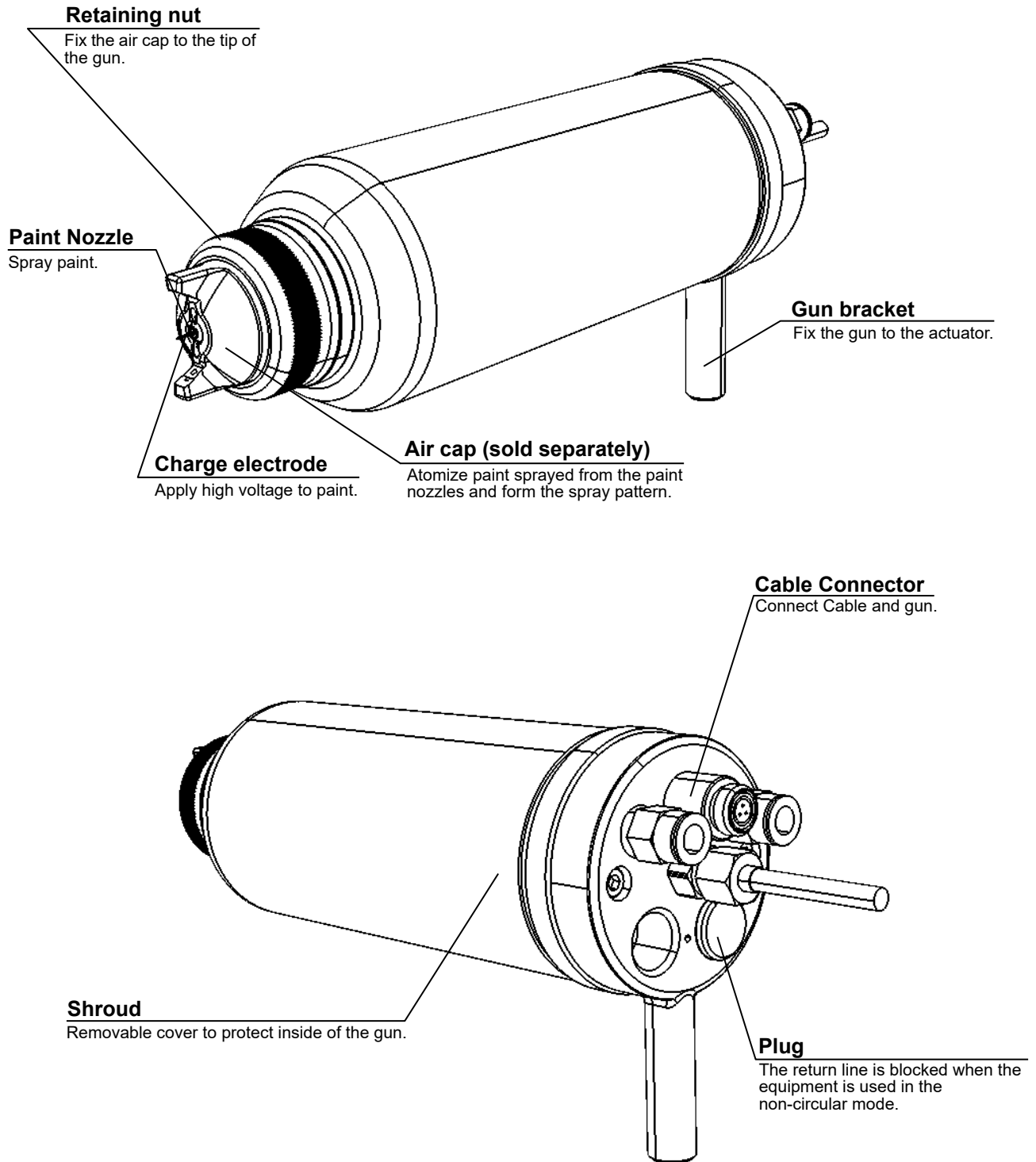
In case of a fire, make sure to have equipment that has been regularly inspected installed at all times.

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

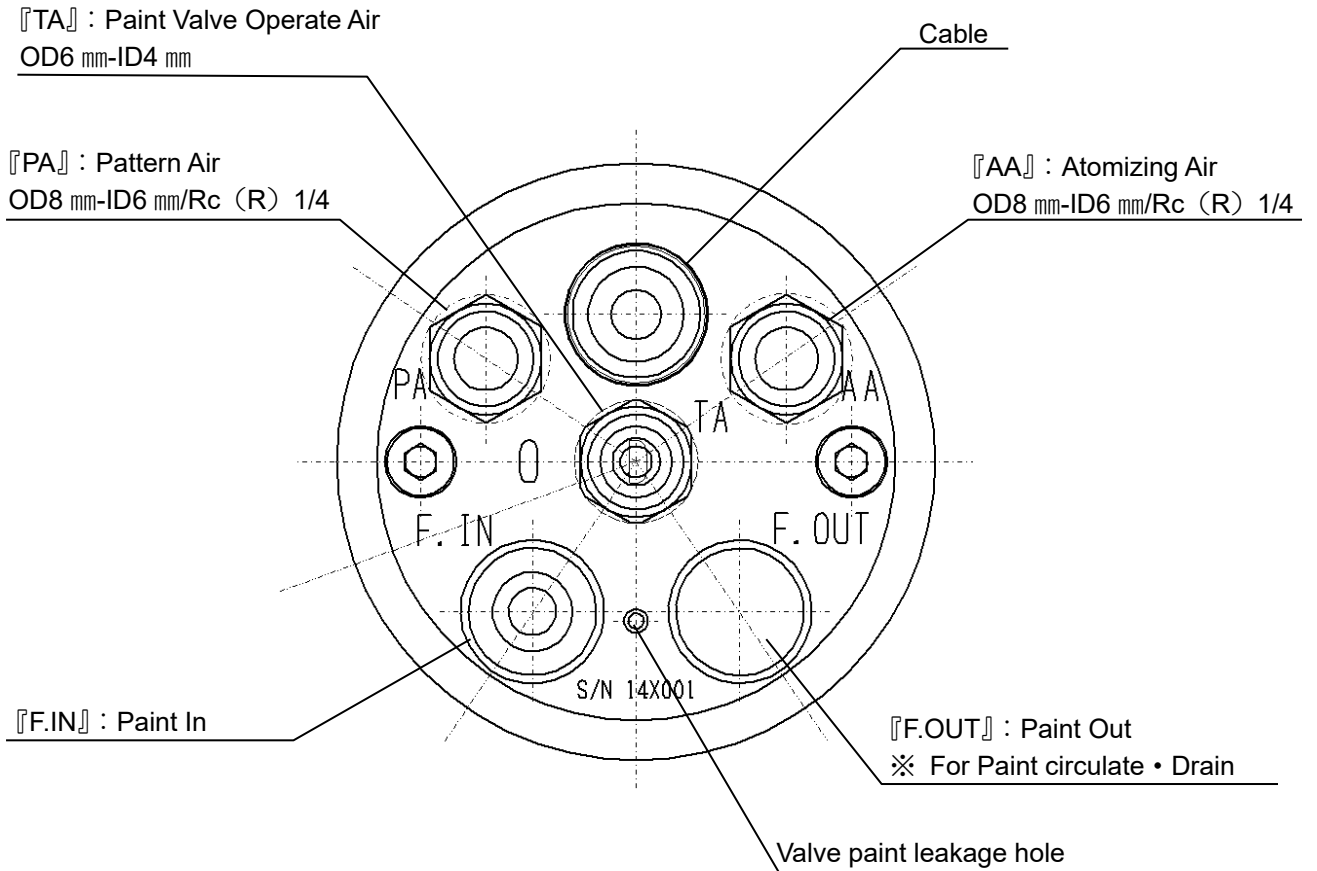
2

Equipment Overview

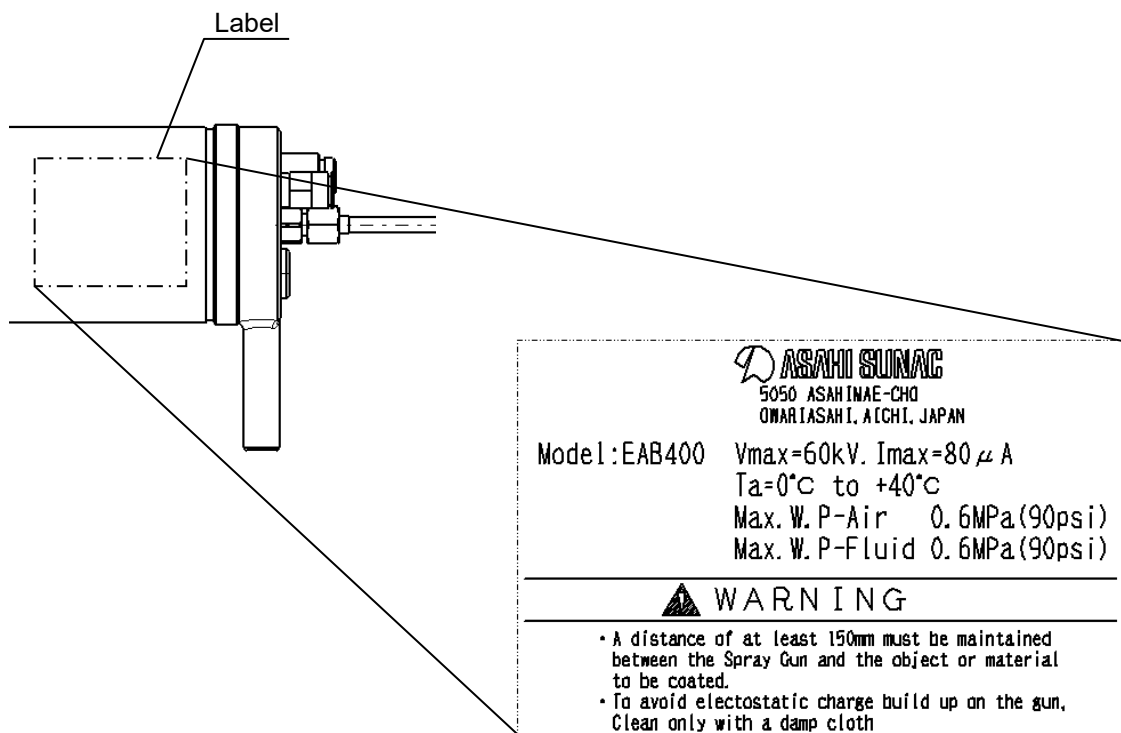
2.1 Names and Roles of Parts



2.2 Names of Connections on Back Plate



2.3 Items on Rating Plate



2.4 Component of Gun (Main Body)

① Sungun III automatic electrostatic air spray gun (EAB400)

The gun (main body) is equipped with the power pack (high-voltage generator) and has air and paint lines of the paint discharge valve (trigger valve).

This product is in the non-circular mode in the default setting. To use the product in the circular mode, you need to replace the plug with the supplied part.

② Paint nozzle

The paint nozzle has a role to discharge paint from the tip of the gun and switch pattern air and atomizing air.

③ Charge electrode

The charge electrode applies high voltage to the paint discharged from the tip of the gun to perform electrostatic coating.

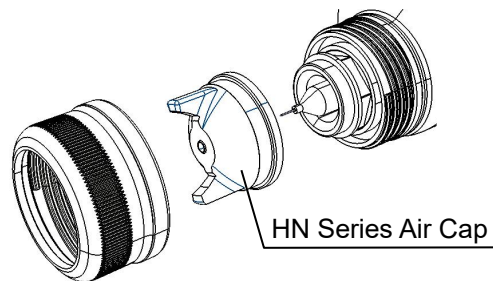
2.5 Related Accessory Parts (Optionally Available)

- The related accessory parts and maintenance tools are necessary for running and operation of this product. Select appropriate equipment from those listed below according to the usage and conditions and **procures them separately.**
- When you procure products and/or parts of the related accessory equipment, be sure to check the part numbers and quantities in the relevant instruction manuals.

2.5.1 Air cap (Model: HN Series)

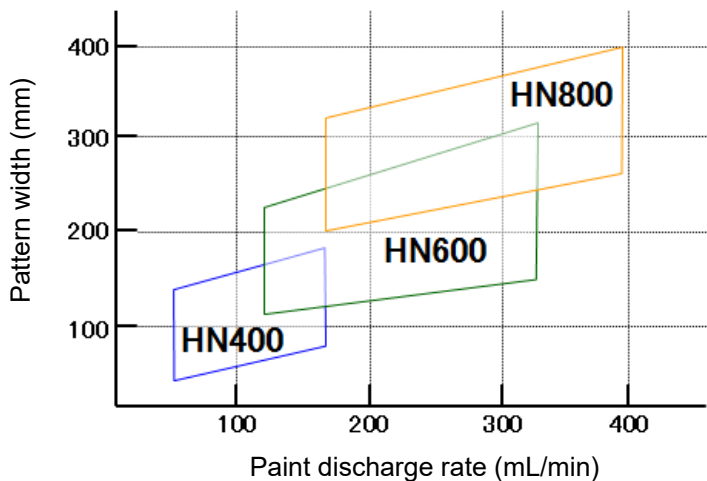
- A part which is mounted at the tip of the coating equipment and enables atomization and pattern formation using power of air.
- Select an air cap from the table below with the specifications which meet your usage.

Image Figure of HN Series Air Cap



*All the HN Series caps can be used for common Paint Nozzle Assy.

<How to Select Air Cap>



Part No. of air cap

Model	Usage	Parts No.
HN400	Narrow pattern	15F8-001
HN600	General	15F8-101
HN800	Fine atomization	15F8-201

2.5.2 Electrostatic controller (BPS260 Series)

A device to control high-voltage application of the built-in cascade of the coating machine.

It also detects and outputs various errors by monitoring the current value while the equipment is in operation.

External View of BPS260 Series



*For details of the specifications, see the instruction manual of BPS260

Electrostatic controller part No. list

No.	Part Name	Parts No.	Specifications
1	BPS260	445-0159	English/Japanese Ver.
2		445-0160	English Ver.

2.5.3 Power transmission cable

You can connect the “connection cable” and “extension cable” up to 30 m between the coating equipment and electrostatic controller and use them as a power transmission cable.

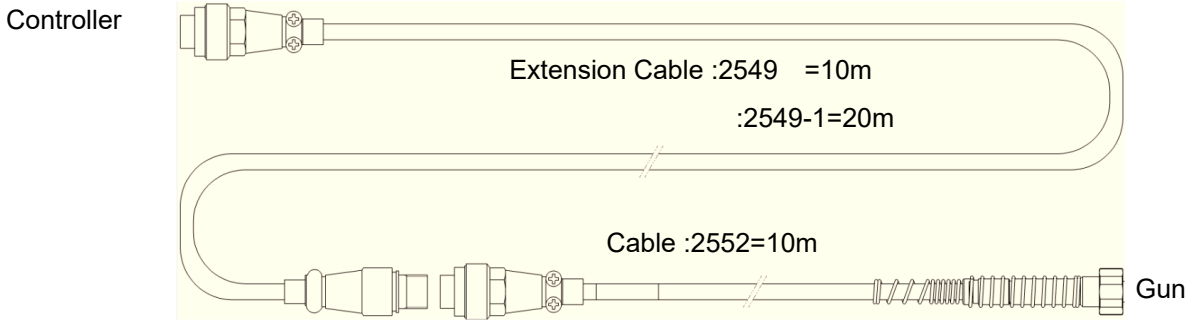
Connection cable part No. list

No.	Part Name	Parts No.	Specifications
1	Connection cable	2552	10 m

Extension cable part No. list

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

Cable Image



2.5.4 Paint hose

A paint hose to feed paint from the pump to the paint equipment.

These hoses have a double-layered structure; they can be used with paint with a low electric resistance value.

Paint hose (metal fitting specifications) part No. list

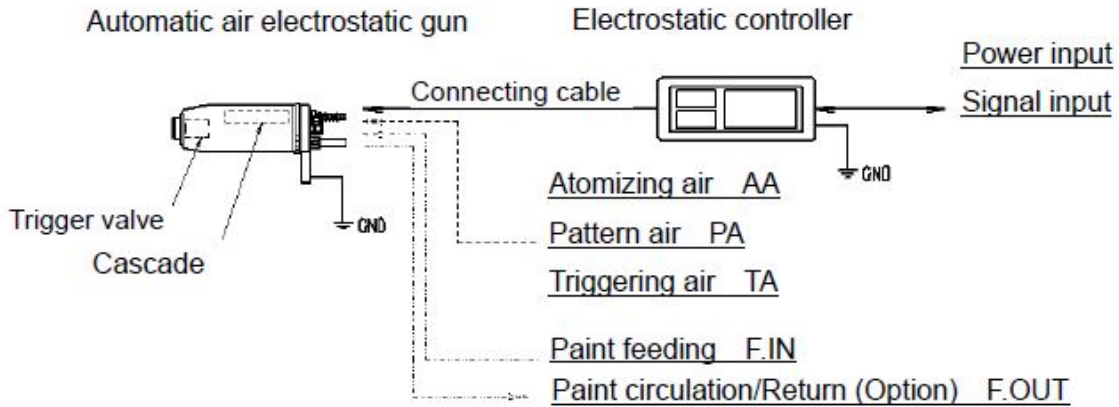
No.	Part Name	Parts No.	Specifications
1	Paint hose	3445	1 m
2	Paint hose	3445-1	5 m
3	Paint hose	3445-2	10 m

Paint hose (resin fitting specifications) part No. list

No.	Part Name	Parts No.	Specifications
1	Paint hose	3446	1 m
2	Paint hose	3446-1	5 m
3	Paint hose	3446-2	10 m

2.5.5 Connection of each component

- Signal input/output to Electrostatic Controller and paths for air and painting material should be connected separately referring to the sketch shown below.
- Details of connections for power, air and paint should be referred to the specifications of each system.



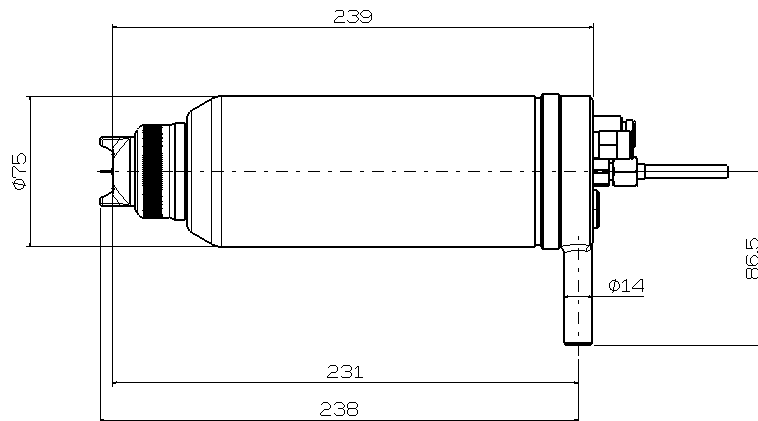
CAUTION

Gun Bracket should be fastened to metal support securely grounded sufficiently. When to protect the Gun installed on Robot with plastic shear pins, never forget to ground the Gun Bracket with grounding wire. (Grounding resistance should be under 1k Ω)

3

Specifications

3.1 Outline Drawing



3.2 Product Specifications

Model	EAB400
Dimensions	Φ75 × 239 mm
Weight	1,400 g *Including the paint nozzle and plug; The paint hose and gun bracket are excluded.
Maximum hydraulic pressure	0.6 MPa
Maximum air pressure	0.6 MPa
Maximum voltage applied	DC-60kV
Maximum current	80 μA
Trigger valve working pressure	Minimum working pressure: 0.35 MPa Normal working pressure: 0.4 to 0.5 MPa
Applicable air cap	HN400/HN600/HN800
Electrostatic controller	BPS260 series
Connection cable length	10 m *The connection cable can be extended up to 30 m in combination with an extension cable.
Environment	Temperature: 5 to 40°C; Humidity: 40 to 80%
Supply air conditions	Solid particle size: 0.1 μm or less Dew point under pressure: 10°C Atmospheric dew point: -17°C Remaining oil: 0.01 mg/m ³

NOTICE

The temperature of the paint must be 40°C or lower when it is supplied. If the temperature of the paint is high, the paint hose may soften and come off.

NOTICE

For the paint pressure feed system and paint regulator, refer to their instruction manuals. The paint feeding pressure must be 0.6 MPa or lower.

4

Precautions before Operation

The Sungun III system was designed with particular emphasis on safety. However, it is intended for use in a place containing flammable gasses. Great care must be taken when handling/operating it.

WARNING

- Make sure that the work piece subject to coating is constantly grounded.
(If object is metal, under 1 k Ω , and if object is plastic, under 1 M Ω .)
However, if any paint adheres to its contact area with the hanger, its conductivity may lower and a lot of electrostatic energy could be accumulated, resulting in a fire due to a spark. Remove any paint from hangers at regular intervals.
- All metal objects inside the coating booth must be grounded.
High voltage is applied inside the coating booth. If any metal object fails to be grounded inside the booth, electrostatic energy could be accumulated, resulting in a fire due to a spark.
- Do NOT bring the work piece subject to coating in contact with the nozzle attached to the automatic electrostatic air spray gun.
If the work piece subject to coating is not correctly suspended, or if it approaches the nozzle due to vibration of the conveyor, a fire may be induced by a spark. In particular, if an insulating stand is used, intense sparks will occur; provide a large enough distance for spraying.
- If using an insulating stand, the paint feeder must be located at least 300 mm away from the other objects around it.
Low electric resistance paint conducts as much electricity as a copper wire does. If the paint used comes in contact with a metal object such as the paint container, you may encounter an electrical shock. If the automatic electrostatic coating equipment is located near the walk space, a grounded safety fence should be provided.
- Wear antistatic shoes (approx. 1 M Ω electric resistance) throughout operations.
If you wear rubber soled or synthetic resin soled shoes, you may encounter an electrical shock when you touch a grounded object.
- Make sure that the ventilation system is in operation during paint spraying.
Paint and solvent are subject to the hazardous materials regulations of the Fire Defense Law (they are designated as class 4 hazardous materials). The gasses generated by paint spraying are defined as explosive gasses (explosion class 1) under the factory explosion proof guideline. Operations must be performed with an appropriate ventilation system in operation.
- Do NOT leave paint nor solvent unattended in the coating booth.
Paint and solvent are subject to the hazardous materials regulations. They must be stored in a cabinet that conforms to the regulations. In particular, cleaning solvent must be stored in a grounded, lidded container.
- Provide a fire extinguisher.
Be sure to keep a powder type, carbon dioxide fire extinguisher handy in case of emergency.

5

Preparation for Coating

Before starting the coating operation, make preparations for coating in accordance with the following procedures.

CAUTION

Check that the power switch of the static electricity controller is OFF.

5.1 Paint

① Mixing of paint

This equipment can obtain an electrostatic effect from almost all synthetic resin paints, except some paints, and therefore there is no need to mix paints specially. Meanwhile, you can obtain a higher electrostatic effect by adjusting the electric resistance value of the solvent in some cases. In addition, much electrostatic effect cannot be expected from some paints with extremely low or high electric resistance value. Check the resistance value using a paint resistance meter.

If the paint resistance value is adjusted within 15 to 70 MΩcm, a fair effect can be obtained in most cases. When the resistance is 15 MΩcm or lower, even if a fair electrostatic effect is obtained, if the booth is not ventilated properly, paint is sprayed back to the gun.

NOTICE

You can judge if an electrostatic effect is good or bad by coating a φ20 to 30 mm steel pipe from the front as it is grounded. If coating is done up to the back side, it indicates that a good electrostatic effect is obtained.

CAUTION

From conductive paints such as metallic paint and water paint of which electric resistance is extremely low, almost no electrostatic effect can be expected unless paint supply system using an insulation stand.

When this kind of paint is used, the high voltage shutdown circuit of the static electricity controller is activated upon application of high voltage, and an alarming buzzer goes off and high voltage is shut down. When you turn OFF the power switch of the static electricity controller, the alarming buzzer is reset.

CAUTION

Be sure to use a paint and solvent of which flash point higher than the room temperature by 5°C or more and turn on the ventilation system.

NOTICE

If you do not know the compatibility between the gun/equipment and paint, please consult our company.

② Insertion of paint

Insert paint into the paint feeder.

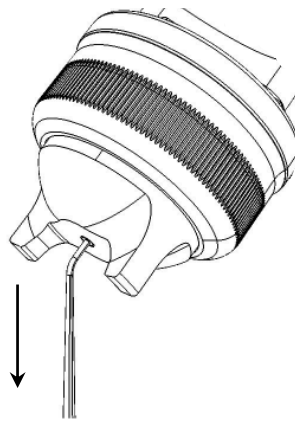
The standard viscosity when this coating equipment is used is around 9 to 30 sec/FC#4 in general, but the viscosity varies according to various conditions such as the type of paint and solvent, shape of the work piece subject to paint spraying, and thickness of a coating film, etc.

③ Supply of paint (For the operation, see the instruction manual of your paint feeder.)

If there is any residual air in the paint hoses, spraying performance will not stabilize due to inefficient spraying; remove any air from the hoses.

④ Discharge of paint

Discharge paint from the tip of the gun. Turn ON the paint valve without supplying air to the gun to discharge paint from the tip of the gun. If there is any residual air in the paint hoses, spraying performance will be deteriorated; discharge paint until all air is removed from the hoses.



⑤ Adjustment of the quantity of paint sprayed

Set the operation mode selector switch on the control panel to "Manual," set the open/close paint switch to "On," and increase the air regulator pressure for adjustment of the quantity of paint sprayed. Adjust the quantity of paint sprayed to the specified level while paint flows from the nozzle.

If low-viscosity paint is sprayed in small quantities, insertion of an orifice (separately sold) between the automatic electrostatic air spray gun system and nozzle will facilitate adjustments.

5.2 Adjustment of Air

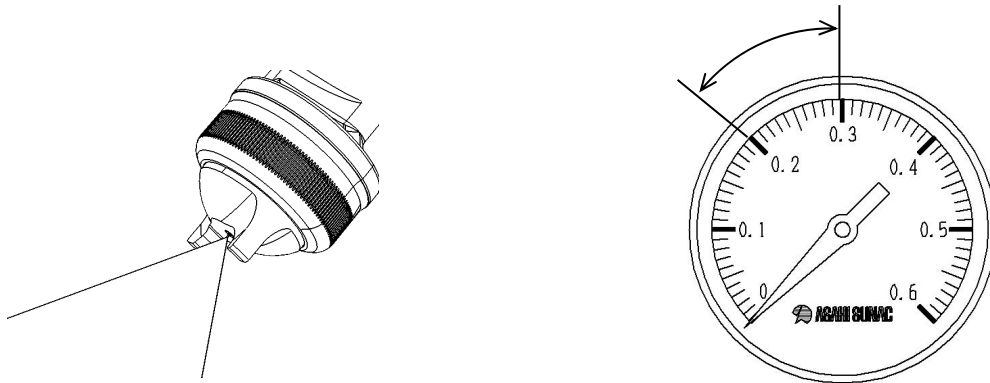
① Adjustment of atomizing air

Check the atomization state of paint discharged from the gun.

Open the trigger valve and set the air pressure to be supplied to the gun to 0.2 to 0.3 MPa (target) to atomize paint.

To adjust the atomizing air pressure, set the operation mode selector switch on the control panel to "Manual" and set the atomizing switch to "On," and operate the atomizing air pressure regulator at the bottom of the control panel. Adjust it while the air cap discharges air.

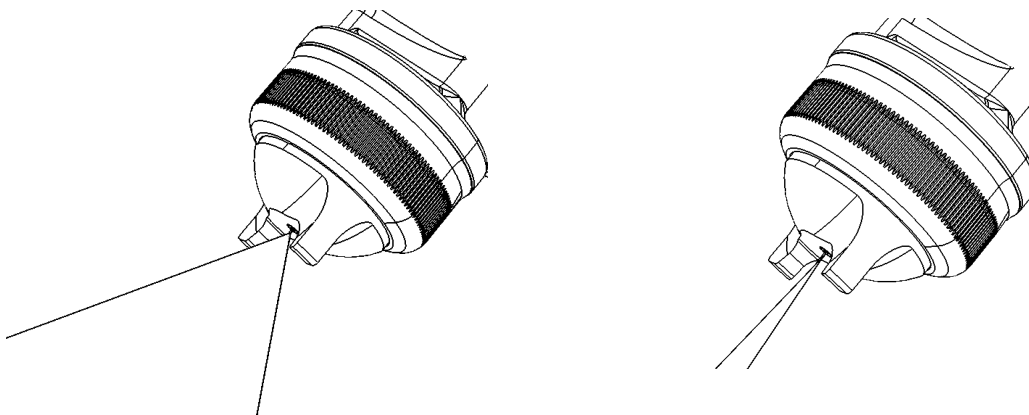
While the atomization air pressure is within 0.05 to 0.35 MPa in general when using a flat spray nozzle, adjust the air pressure in accordance with the air cap and target finishing state.



② Adjustment of pattern air

Adjust the pattern width of the atomized paint.

To adjust the pattern change air pressure, set the operation mode selector switch on the control panel to "Manual" and set the atomizing switch to "On," and operate the pattern change air regulator at the bottom of the control panel. Adjust the spray pattern width while spraying paint.



5.3 Spraying Distance

The spraying distance should be 150 mm or more between the tip of the nozzle and the work piece subject to paint spraying when they are located closest to each other and the coating equipment should be located ahead of the front of the actuator.

If the distance is too large, adhesion performance will lower. Conversely, if it is too small, sparks may be generated.

The optimum spraying distance is 250 to 300 mm.

5.4 Travel Speed

The travel speed of the reciprocator depends on the required coating film thickness. In general, it ranges from 15 to 45 m/min.

If the required coating film thickness cannot be obtained even at a higher speed than 50 m/min, some extra automatic electrostatic air spray guns or some extra paint heaters should be added (Use the paint at temperatures 40°C or lower). In such cases, please contact our Coating Engineering Department. (If the travel speed is increased, transfer efficiency will lower; it is not recommended).

5.5 Paint Spray Cut (If a reciprocator is used)

The reciprocator stroke is kept at a constant level. Prevent unnecessary paint from being sprayed in consideration of the length or width of the work piece subject to paint spraying.

To adjust the spray cut, change the setting on our reciprocator control panel as seeing the spray state.

5.6 Voltage Applied

Electrostatic pressure should be adjusted in consideration of the material of the work piece subject to paint spraying as well as of the type of the paint used. In general, it ranges from approximately -50 to -70 kV. It ranges from approximately -20 to -40 kV in the case of a metallic paint or a water-based paint. It ranges from approximately -20 to -60kV in the case of wooden product.

5.7 System Operation Procedures (they differ according to the specifications of the system; Operation procedures with standard specifications are described below.)

① Manual operation

- Turn on the power. Set the breaker inside the panel and make sure that the "Power" indicator lamp is on. If a door switch is used, make sure that it is closed.
- Set the operation mode selector switch to "Manual." Check the "Manual" indicator lamp.
- Set the operation mode selector switch to "Coating."
- Discharge atomizing air and pattern change air. Set the atomizing switch to "On." Make sure that the "Atomizing" indicator lamp is on.
- Discharge paint. Set the paint switch to "On." Make sure that the "Paint" indicator lamp is on. Use the air regulator at the bottom of the control panel to adjust the atomizing air pressure, pattern change air pressure, and quantity of paint discharged.

- Press the "Start" switch for the reciprocator. Make sure that the "Reciprocator" indicator lamp is on.
- Supply high-voltage power.

Set the controller power switch at the central front of the control panel to "On." At this point, make sure that the controller's power lamp (green) is on. Next, press the high-voltage pushbutton switch "On" at the upper front of the control panel.

At this point, make sure that the "High pressure" indicator lamp and the controller's high pressure lamp (red) are on.

- Start coating operations.

② Automatic operation

- Turn on the power. Set the breaker inside the panel and make sure that the "Power" indicator lamp is on. If a door switch is used, make sure that it is closed.
- Set the operation mode selector switch to "Automatic."
- Set the operation mode selector switch to "Coating."
- Make sure that the atomizing switch is "On."
- Make sure that the paint switch is "On."
- Press the "Start" switch for the reciprocator. Make sure that the "Reciprocator" indicator lamp is on.
- Supply high-voltage power. Set the controller power switch at the central front of the control panel to "On."

At this point, make sure that the controller's power lamp (green) is on. Next, press the high-voltage pushbutton switch "On" at the upper front of the control panel. At this point, make sure that the "High pressure" indicator lamp and the controller's high pressure lamp (red) are on.

- Start coating operations.

5.8 Precautions to Be Taken at Stoppage and End of Spraying Operations

① Cleaning the paint nozzle

When stopping spraying operations, or at the end of spraying operations, be sure to clean the nozzle.

- Press the high-voltage pushbutton switch "Off" to turn off the high-voltage power.
- Bring the reciprocator to a stop to turn off the paint and air spray.
- Bring the ground bar connected to the tip of the paint nozzle in complete contact for more than 10 seconds to thoroughly discharge any residual electrostatic energy.
- Use a brush soaked (horsehair/animal/vegetable bristle brush) with solvent to dissolve and remove the paint attached to the nozzle surface.

If paint cannot be removed with the brush, submerge the nozzle in solvent for a few minutes and then retry to remove it carefully with the brush without causing damage to the nozzle.

- After it has been cleaned, discharge atomizing air manually to remove any solvent trapped in the air line.

② Cleaning the paint hoses, automatic electrostatic coating equipment, and air control paint regulator

In the case of paint color change, or if you are not using the coating equipment for a long period of time, clean the inside of the paint line.

- Press the high-voltage pushbutton switch "Off" to turn off the high-voltage power.
- Bring the reciprocator to a stop to turn off the paint and air spray.
- Set the operation mode selector switch to "Cleaning."
- Select the manual mode and operate the paint pump with no load to remove any residual paint from the paint line (use of pressurized air will help finish this operation in a shorter period of time).
At this point, make sure that the high-voltage power is turned off.
- Open the pump's three-way cock to remove any residual paint from the paint hoses, air control paint regulator, and automatic electrostatic coating equipment. After the removal, close the cock.
- Transfer the suction pipe from the paint pump to the solvent tank and circulate solvent through the paint line without allowing it to flow from the tip of the automatic electrostatic coating equipment (perform this step a couple of times using clean solvent).
- If you are not using the coating equipment for a long period of time, completely remove any residual solvent from the paint line; or thoroughly fill the paint line with clean solvent.
- Wipe any dirt from the surface of each equipment using a cloth soaked with solvent. Do NOT clean inside of the gun with its shroud removed.

 **WARNING**

- When cleaning the nozzle, make sure that the high-voltage switch is OFF.
- In the case of paint with a low electric resistance value, be sure to use an insulating stand. Otherwise, the expected electrostatic effect could not be obtained. In general, an insulating stand should be used, if the electric resistance value of the paint is 20 MΩ-cm or lower with the voltage setting = -60 kV, or if the reading on the high-voltage generator's ammeter is -50 μA or higher.
- Operators must maintain a distance of more than 1 m from the coating equipment during spraying operations. If you move closer to the coating equipment, you may get an electrical shock.
- Do NOT put solvent containers inside the coating booth.

 **CAUTION**

- A nozzle is an essential part of a coating system. When handling nozzles, great care must be taken so as not to drop them or cause damage to them.
- Be sure to drain the air compressor once a day.
Replace the cartridge elements for the air filter and the mist separator once every 6 to 12 months.
- Paint must be filtered before use.
- Do NOT use the gun with its shroud removed.
- If a two-component paint or an easily perceptible paint is used, thoroughly clean the inside of the gun to remove any residual paint after use.
If it fails to be thoroughly cleaned, the durability of the valve may lower and paint leakage could occur as a result.

Definition of an Overcurrent

The high-voltage charging part of the coating equipment is protected with an insulating material. If its insulation performance lowers due to foreign matter, such as paint, adhered to its surface, current may flow from the high-voltage charging part through the paint adhered to the surface, resulting in a dangerous situation such as occurrence of a spark. This is a typical process of occurrence of an overcurrent.

Current leaking from the high-voltage charging part is monitored by an overcurrent protection circuit. If the current setting is exceeded, the overcurrent protection circuit will bring the output from the high-voltage generator to a stop to prevent accidents due to electrostatic energy. The activation of this circuit is regarded as an overcurrent.

If an overcurrent occurs, necessary safety measures including alarm output and coating line stoppage will be taken. To return to normal operation, you will have to restore the insulation as well as to locate the part(s) with poor insulation.

6

Maintenance and Inspection

Keep the gun, paint hoses, and connection cables clean without affixing paint and other dirt on them.
Be careful not to damage them with mechanical shock.

6.1 Procedure to Finish Operation

To stop or finish the coating operation, follow the procedures given below.

6.1.1 When the operation is resumed within 24 hours

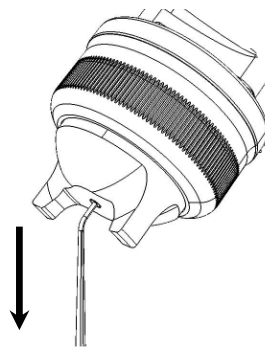
- (1) Turn OFF the power switch on the control panel.

CAUTION

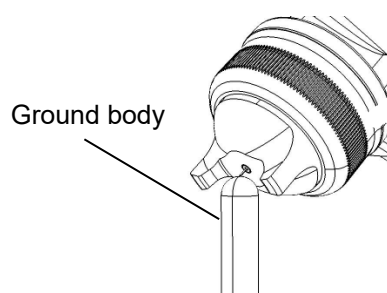
In the case of a paint with a low electrostatic resistance value (2 MΩcm or less), the paint pump will be charged with high voltage. Be sure not to touch the pump while high voltage is being applied.

When you touch the pump or replenish the paint, turn OFF the static electricity controller and ground the pump with the ground bar.

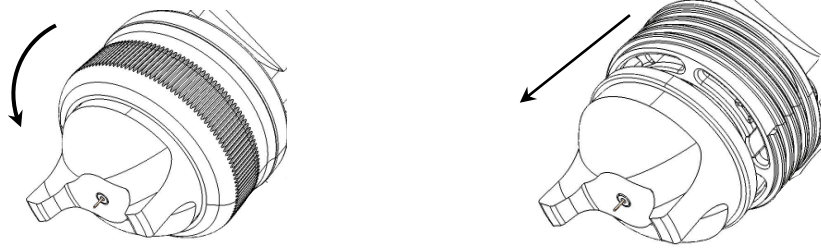
- (2) Set the pressure of the air to be supplied to the gun to 0 MPa.
- (3) Set the drive air pressure of the paint pressure feed system to 0 MPa.
- (4) Discharge the paint from the tip of the gun to discharge the remaining pressure.



- (5) Quietly ground the electrode pin at the tip of the paint nozzle to discharge any residual electrostatic energy as the trigger is open.



- (6) Turn the retaining nut counterclockwise and remove it, and also remove the air cap.
Be careful when you remove the air cap so that thinner and solvent will not enter inside the gun.



⚠ CAUTION

Be careful not to drop the air cap when you remove it.
If you drop the air cap, it may get damaged.

⚠ CAUTION

It may cause injury to the human body and an accident.
When you remove the air cap, be sure not to touch the electrode pin.

⚠ CAUTION

It may cause breakage of the retaining nut, nozzle, and equipment.
When you remove the retaining nut, be sure to turn it with your hand.
If you use a tool, etc. to remove the retaining nut, it may get damaged.

- (7) Remove the dirt such as paint mist affixed on the gun and air cap with a waste cloth moistened with a cleaning solvent.

⚠ CAUTION

When you clean the gun and air cap, do not use a hard brush such as a metal brush.
If you use a hard brush, the surface of the gun and air cap gets scratched, and their performance may be deteriorated.

 **CAUTION**

When you clean the nozzle and air cap, be careful so that a solvent will not enter the inside of the coating equipment. After cleaning is finished, discharge atomizing and pattern air and discharge entered solvent.

 **CAUTION**

Entry of solvent may cause an overcurrent during electrostatic pressure application, making it impossible to perform electrostatic coating.
Electrostatic leakage due to paint adhered to the surface of the gun may cause overcurrent, making it impossible to perform electrostatic coating.

 **CAUTION**

Do not leave the gun, power cables, and hoses, etc. in a solvent while cleaning is made and after cleaning is done, or after the operation is finished. The gun contains a lot of electric and electrical circuits and has a structure in which a solvent will not enter under normal use.
However, if it leaves in a solvent for a long time, the durability may be deteriorated, causing a failure.

 **CAUTION**

If a chemically curing paint such as a two-component paint or an easily perceptible paint is used, clean the inside of the gun every time the operation is finished in accordance with “6.1.2 When the operation is not resumed within 24 hours”.

 **WARNING**

If you use the gun covered with a sheet for prevention of contamination, a spark may occur due to electrostatic pressure application, resulting in a fire.

 **CAUTION**

If the gun is installed in an upward inclined position, clean it while discharging atomizing air and pattern air at a low pressure of 0.05 MPa or so.
Entry of a conductive paint, such as a metallic paint, may cause electrostatic leakage, making it impossible to perform electrostatic coating.

- (8) At least once a week, remove the shroud and check its inside for foreign matter such as paint or solvent. If there is any paint inside, remove it with solvent, completely remove any residual solvent with air blows, and then attach the shroud.

 **CAUTION**

Do not perform coating operations with the shroud removed. This may cause paint mist to adhere to the inside of the shroud, resulting in overcurrent.

Do not apply electrostatic pressure with the shroud removed. This may decrease the withstand voltage performance of the gun and a voltage breakdown could occur, resulting in overcurrent.

- (9) Before the start of daily operations, make sure that the cables connected to the gun is free from damage. In addition, make sure that any excessive tension will not be applied on the cables due to the movement of actuator.

 **CAUTION**

The connection cable not only supplies power to the gun but also serves as a grounding and control wire for the gun.

If any of them are damaged, you may encounter a fire or an electrical shock due to a ground fault.

- (10) Before the start of daily operations, make sure that the metal parts, such as the gun's mounting bracket, are correctly grounded. Measure the resistance between gun's bracket and a grounded object such as the booth; it must be 10 Ω or lower.
- (11) Before the start of daily operations, make sure that the gun is firmly secured and that the gun does not come into contact with the work piece subject to paint spraying.

6.1.2 When the operation is not resumed within 24 hours

- (1) Turn OFF the power switch on the control panel.
- (2) Set the pressure of the air to be supplied to the gun to 0 MPa.
- (3) Pull out the suction pipe of the paint pump from the paint container.
- (4) Drive the paint pump and discharge the paint from the paint return line.
- (5) Open the trigger valve of the gun to discharge the paint remaining in the hoses and gun from the tip of the gun.
- (6) Suck a cleaning solvent from the suction pipe, discharge it from the return side to the cleaning waste container, and repeat this procedure until the inside of the pump becomes clean.
- (7) Discharge the solvent from the tip of the gun to clean the hoses and inside the gun.
- (8) Stop the pump and open the trigger valve to discharge the residual pressure from the tip of the gun.
- (9) Turn the retaining nut counterclockwise and remove the air cap.
- (10) Remove the dirt such as paint mist affixed on the gun and air cap with a waste cloth moistened with a cleaning solvent.
- (11) Rotate the hex of the nozzle using the dedicated spanner and remove the nozzle.

It is recommended to leave the cleaning solvent in the line after cleaning is finished to prevent the remaining paint in the paint line from being hardened.

 **CAUTION**

The paint nozzle may be damaged.

When you remove the nozzle, be sure to use the dedicated spanner, which is an attached part. Be careful not to drop the nozzle.

(12) Dip the paint nozzle in the cleaning solvent and blow the compression air to the nozzle to blow off the dirt.

 **CAUTION**

When you clean the paint nozzle, do not poke it with a metal object such as a wire. Do not use a metal brush and the like. If you do so, it may expand the hole diameter and/or make scratches, deteriorating the performance.

 **CAUTION**

Wait 10 sec or more after turning OFF the power switch of the static electricity controller before cleaning the gun. 90% or more of fire accidents of the static electricity coating equipment occurred upon cleaning of the nozzle, etc. When you clean the nozzle, etc., be sure to turn OFF the power switch. Provide a fire extinguisher in case of a fire accident.

 **CAUTION**

When an error occurs during the operation, turn OFF the power switch of the static electricity controller and lower the pressure of the air and paint to be supplied to the gun to 0 MPa.

 **CAUTION**

Do not give a strong shock such as drop, etc. Although this equipment is designed fully taking into consideration strength, it may get damaged by shock.

(13) Regarding the cleaning waste solvent, collect and reuse it using the Solvent Recovery Device or dispose it through an industrial waste disposal contractor in accordance with the law.

6.2 Maintenance of Other Equipment

- (1) For maintenance of the paint feeder, refer to its instruction manual.
- (2) At the end of daily operations, clean the resin portion of the air control paint regulator's mounting bracket with solvent to remove any paint.

CAUTION

Adhesion of a lot of paint to the surface of the air control paint regulator's mounting bracket may cause charging current to leak, resulting in an overcurrent.

- (3) If a two-component paint or an easily perceptible paint is used, thoroughly clean the gun with solvent after use. Disassemble and clean it at regular intervals (at least once every three months).

6.3 Periodical Inspections

Conduct inspections regularly in accordance with the table in the next page so that the performance of this equipment can be fully utilized. The frequency of each inspection is a reference and varies according to the use condition.

WARNING

Unexpected operation of the coating equipment may cause injury to the human body and an accident.

Before conducting a periodic inspection, turn OFF the power of the control panel and release air and pressure.

Item	Procedure	Frequency
Inspection of exterior of the gun	When paint is affixed on the gun, wipe it with a soft cloth or brush moistened with a cleaning solvent.	Every day
	If there is any scratch on the gun, replace the gun with a new one.	
Inspection of waste paint from air cap	When paint is affixed on the air cap, wipe it with a soft cloth or brush moistened with a cleaning solvent.	
Inspection of clogging of air cap air discharge hole	Dip the air cap in a cleaning solvent and blow it with air.	
	If clogging cannot be removed, replace the air cap with a new one.	
Inspection of scratches and dents around the paint outlet of the paint nozzle	If there is any scratch and/or dent on the paint nozzle, replace it with a new one.	
Inspection of clogging of the paint discharge hole of the paint nozzle	Dip the paint nozzle in a cleaning solvent and blow it with air to remove clogging. If clogging cannot be removed, replace it with a new one.	
Inspection of paint seat and bellows needle	Perform cleaning from the gun paint line to the nozzle by pouring a cleaning solvent, and if paint is leaked from the tip of the gun, replace the paint seat or bellows needle.	
Check current value when electrostatic pressure applied.	If the current value is higher than the normal value, identify the location where current is leaked and replace the part.	
Inspection of charge electrode	If the distance between the electrode and paint discharge hole of the nozzle is less than 2 mm, replace the electrode with a new one.	
Inspection of connection cable	If the connection cable is damaged, replace it with a new one.	
Inspection of air leakage	If air is leaked, replace the seal at the air leakage location.	Every month
Inspection of contamination with paint in paint hose	If the inside the paint hose is contaminated with paint, perform cleaning by pouring a cleaning solvent.	
	If clogged paint cannot be removed, replace the hose with a new one.	
Inspection of trigger valve	If paint leaks from the tip of the gun, replace the trigger valve.	
Inspection of piston	When there is a problem in sliding ON/OFF of the trigger valve, replace the piston with a new one.	

NOTICE

For how to replace parts, see “9. How to Replace Parts”.

CAUTION

Do not disassemble the gun unnecessarily when an error occurs.
You should not disassemble the gun to maintain the electric insulation and sealing functions of the gun unless there is a need to replace a part due to an error.

CAUTION

The surface of the gun may get warm by heat of the high-voltage generator. This is not a failure.

6.4 Consumable Part

Prepare spare parts in accordance with the use condition with reference to the rank category in the consumable parts list given below.

Rank	Part name	Part No	Estimated Consumption Period	Component assembly	Publishing page
A	Paint Nozzle Assy	15F7	6 months	EAB400	37·38·39
	Charging Electrode	1718	6 months	EAB400	37·38
	O RING	130-9012	6 months	Paint Nozzle Assy	39
B	Paint Seat	1728	12 months	EAB400	37·38
	Needle	1832-008	12 months	EAB400	37·38
	U PACKING	152-0004	12 months	EAB400	37·38
	O RING	101-9014	12 months	EAB400	37·38
	Ring Seal	373-0010	12 months	Retaining Nut Assy	39
	O RING	130-9006	12 months	Paint Seat	39
C	O RING	101-9004	—	EAB400	37·38
	O RING	102-9065	—	EAB400	37·38
	O RING	130-9010	—	EAB400	37·38
	O RING	130-9042	—	EAB400	37·38
	Cross Recessed Screw	364-0019	—	EAB400	37·38
	Hex Socket Screw	364-0030	—	EAB400	37·38
	Plug	131E-002/131F-	—	EAB400	37·38
	Hex Socket Screw	03-70520	—	EAB400	37·38
	Gasket	137F-034	—	EAB400	37·38
	Sems Screw 2P	12-10204	—	EAB400	37·38
	D	O RING	130-9004	—	EAB400
O RING		101-9007	—	EAB400	37·38
O RING		101-9005	—	Paint Seat	39

Rank A: Daily consumable parts

Rank B: Medium-term consumable parts

Rank C: Parts that may get damaged/lost upon disassembling

Rank D: Parts that need to be replaced upon disassembling

*Note that the durable periods of the consumable parts vary according to the paint and facilities conditions, etc. The values given in the above consumable parts list are reference values in the case that the equipment is operated for 20 days/month and 8 hours /day.

There are cases where multiple symptoms and causes occur at the same time according to the state of a paint problem.

Symptom	Cause	Countermeasure
1. Poor spray atomization	① The atomization air pressure is too low.	① Increase the atomization air pressure.
	② Quantity of paint discharged is too large.	② Reduce quantity of paint discharged or increase the atomization air pressure.
	③ Paint viscosity is too high.	③ Lower paint viscosity.
	④ The pin at the tip of the nozzle is bent.	④ Replace the charge electrode.
	⑤ The paint nozzle is damaged.	⑤ Replace the Paint Nozzle Assy.
	⑥ The solvent is not appropriate.	⑥ Consult the paint manufacturer or us.
2. Excessive paint splashes	① The spraying distance is too far.	① The spraying distance must be within 150 to 200 mm.
	② The atomization air pressure is too high.	② Adjust the atomization air pressure to lower.
	③ The paint resistance is too low.	③ Adjust the paint resistance to within 15 to 70 Ω -cm).
	④ Grounding of the work piece subject to paint spraying is not complete.	④ Provide complete grounding.
	⑤ The discharge speed is too slow.	⑤ Increase the discharge speed.
3. Poor coating efficiency	① Ground fault with work piece subject to paint spraying.	① Clean the paint affixed on the hanger and provide complete grounding.
	② The atomization air pressure is too high.	② Adjust the atomization air pressure to an appropriate level.
	③ The spraying distance is too far.	③ The spraying distance must be within 150 to 200 mm.
	④ Applied voltage is too low.	④ Increase the output voltage of the static electricity controller using the output voltage adjustment switch.
	⑤ The charge/discharge speed of the booth is too fast.	⑤ Adjust the charge/discharge speed of the booth to lower.
	⑥ Paint electric resistance is too high.	⑥ Adjust the resistance to within 15 to 70 $M\Omega$ -cm.
4. "Whiskers" generated due to paint attached to nozzle, or filiform lumps generated on a work piece subject to paint spraying.	① Solvent vaporizes too quickly.	① Use lower volatility solvent or additive.
	② The paint has a high viscosity.	② Lower paint viscosity.
5. Granulated paint surface	① Poor spray atomization.	① See "Poor atomization" in 1 of this chapter.
	② There is much dust in the coating booth, and dust is affixed on the paint surface.	② Put dust filter at the air intake duct leading to the coating booth and remove dust with air blows.
	③ Contamination of atomized air	③ Clean or replace the filter of the air line.
	④ Unevenly distributed pigment is contained in paint.	④ Change the solvent or filtrate the paint thoroughly.
6. Orange peel (spots/marks)	① The temperature in the paint booth is high, or the solvent evaporates fast.	① Adjust the room temperature or use lower volatility solvent.
	② Temperature of work piece subject to paint spraying is too high.	② Adjust the drying furnace to lower the temperature of the work piece subject to paint spraying.
	③ The charge/discharge speed is too fast.	③ Adjust the speed in the range from 0.5 to 1.0 m/s on the surface of the work piece subject to paint spraying.

Symptom	Cause	Countermeasure
7. Crawling	① Incompletely cleaned work piece subject to paint spraying.	① Perform cleaning thoroughly or remove oil thoroughly.
	② Contamination of atomized air	② Clean or replace the filter of the air line.
	③ Baking oven exhaust failure.	③ Make exhaust system operate correctly.
8. Sagging of paint on the paint surface	① Coating film is too thick.	① Reduce the paint discharge amount or increase the gun travel speed.
	② Paint viscosity is too low.	② Increase paint viscosity.
	③ Solvent vaporization is slow.	③ Use higher volatility solvent.
9. See-through of coating film	① Insufficient paint is discharged.	① Adjust the quantity of paint sprayed and consider the travel speed of the gun and recoating.
	② Paint viscosity is too low.	② Increase paint viscosity.
10. Pinholes	① Contamination of atomized air	① Clean or replace the filter of the air line.
	② Solvent vaporizes too quickly.	② Use lower volatility solvent.
	③ Temperature of work piece subject to paint spraying is too high.	③ Lower the temperature.
	④ Incompletely dried undercoating.	④ Completely dry.
	⑤ Setting time is short.	⑤ Take sufficient setting time.
11. Blushing (whitening).	① Temperature and humidity inside and outside of the paint booth are high.	① Use lower volatility solvent. Inspect air-conditioning equipment.
	② Inappropriate solvent selected.	② Consult the paint/solvent manufacturer or us.
12. Bubbles (foaming)	① Contamination of atomized air	① Clean or replace the filter of the air line.
	② Incompletely dried after wet rubbing.	② Completely dry.
	③ Coating film is too thick.	③ Reduce the paint discharge amount.
	④ Solvent vaporizes too quickly.	④ Use lower volatility solvent.
	⑤ Temperature of the baking oven is too high.	⑤ Adjust the temperature to an appropriate value.
13. Inappropriate pattern shape	① Paint and/or dust is affixed to atomized air of the paint nozzle and to the paint discharge outlet.	① Perform cleaning thoroughly using thinner and a bamboo brush and filtrate the paint.
	② The paint has a high viscosity.	② Lower the viscosity.
	③ The tip of the paint nozzle is damaged.	③ Repair or replace nozzle.
	④ Pattern adjustment failure.	④ Adjust the pattern correctly.
	⑤ Incompletely tightened nozzle.	⑤ Confirm that the Paint Nozzle Assy is not loosened and then mount the air cap.



Troubleshooting

There are cases where multiple symptoms and causes occur at the same time according to the state of a failure.

Symptom	Cause	Countermeasure
1. Paint discharge is unstable, and spray performance becomes insufficient.	① The Paint Nozzle Assy is not tightened firmly.	① Tighten the Paint Nozzle Assy firmly.
	② The seat face of the paint seat or bellows needle is damaged.	② Replace the paint seat or bellows needle.
	③ Air is mixed into the paint.	③ Check the paint feed system.
	④ Quantity of paint discharged is extremely low.	④ Increase the paint discharge amount or lower the atomized air pressure.
2. The paint discharge amount is decreased.	① Failure in the paint pressure feeding system.	① Check the paint pump, paint regulator, and other paint supply system.
	② Clots of paint and/or dust is clogged in the paint seat unit.	② Clean the paint seat unit.
	③ Paint and/or dust is affixed in the Paint Nozzle Assy.	③ Remove the Paint Nozzle Assy and clean it.
3. Paint leaks from the nozzle.	① Clots of paint and/or dust is clogged in the paint seat unit.	① Clean the paint seat unit.
	② Wear-out and chipping of the paint seat unit.	② Replace the paint seat or bellows needle.
	③ Wear-out of spring at the rear of piston ASSY.	③ Replace the spring at the rear of piston ASSY.
	④ The pressure feeding pressure of the paint is too high.	④ Lower the pressure feeding pressure.
4. Paint leaks from the leakage check hole of the gun.	① Damage of the packing.	① Replace the bellows packing.
	② Damage of the O Ring of paint pipe/plug.	② Replace the O Ring of paint pipe/plug.
5. Unstable opening/closing of trigger valve.	① Wear-out of the O Rings around the piston.	① Replace the O Rings around the piston.
	② Wear-out of spring at the rear of piston ASSY.	② Replace the spring at the rear of piston ASSY.

Symptom	Cause	Countermeasure
6. Spark is discharged from nozzle. (When the insulating stand is not used.)	① Damage of power pack.	① Replace the power pack.
7. Spark is discharged from nozzle. (When the insulating stand is used.)	① Damage of power pack.	① Replace the power pack.
	② Paint is changed to the one with a low electric resistance value or to a metallic paint.	② Lower the output voltage of the static electricity controller.
8. Warning buzzer of the control unit goes off. (When the insulating stand is not used.)	① Paint is affixed on the exterior of the gun.	① Clean the exterior of the gun.
	② Paint is affixed in the inner diameter of the paint hose.	② Clean the paint hose.
	③ Moisture is accumulated in the air line.	③ Drain water from the air line thoroughly. Turn off the static electricity controller and open the trigger valve to perform air purge to discharge water from the air line.
	④ Paint is changed to the one with a low electric resistance value or to a metallic paint.	④ Use the insulating stand.
	⑤ Paint is leaked due to damage of the bellows seal.	⑤ Replace the bellows needle.
9. Warning buzzer of the control unit goes off. (When the insulating stand is used.)	① Paint is affixed on the exterior of the gun.	① Clean the exterior of the gun.
	② Paint is affixed in the inner diameter of the paint hose.	② Clean the paint hose.
	③ Moisture is accumulated in the air line.	③ Drain water from the air line thoroughly. Turn off the static electricity controller and open the trigger valve to perform air purge to discharge water from the air line.
	④ There is a grounding object near the insulating stand.	④ Place the insulating stand 300 mm or more away from the grounding object.
	⑤ Paint is affixed to the insulating bar of the insulating stand.	⑤ Clean the insulating bar.
	⑥ The section above the insulating bar of the insulating stand is grounded.	⑥ Separate the grounded section above the insulating bar.
	⑦ Paint is leaked due to damage of the bellows seal.	⑦ Replace the bellows needle.

 **CAUTION**

Do not make repairs with any methods other than those specified in this instruction manual.

9.1 Disassembly of Gun Body (Refer to Art.10, "Parts List")

(1) Removal from Gun Bracket

1. First, after confirming that there is no pressure in paint and air lines, remove Shroud (1832-104) by turning it with hand.
2. Remove two Bolts, M4×15, from rear side of the Gun Bracket.
3. Holding Paint Hose, pull out the Gun, where Connecting Cable (2552) will be also pulled out. Remove the Connecting Cable by turning Cable Fixing Nut, and you can take out the Gun Body.

 **CAUTION**

Never forget to eliminate the remaining pressure in paint passage, or paint will be pushed out from Paint Hose and sticks to inside of the Gun, through which electrostatic will leak causing over current and, then, impossibility of electrostatic coating.

(2) Disassembly of Paint Valve

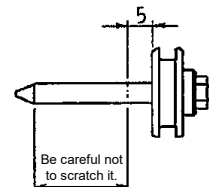
1. Remove two plastic Bolts, M8×30, (364-0030) from Gun Head.
2. Pull out Gun Head (1832-001).
3. Remove Cap (137F-012) and pull out Piston by catching its across flats with pincers or others.
4. After pulling out Needle, remove Screw (6008-007). Also, remove Paint seat (1728) at Gun's front head using plain driver.
5. After removing Paint Seat, insert a Hex. wrench (3mm) into hole where the Seat was, to push out Seal Collar (1832-009).
6. As the U Packing (152-0004) inserted in the Seal Collar may be deformed during the Seal Collar's removal, replace it with new one.

(3) Replacement of Paint Needle

1. Holding across flats (8mm) of Piston with a spanner, loosen and remove Hex. Nut (5.5mm).
2. Pinching the Needle (1832-008), turn and remove Piston (6008-008).
3. After replacing the Needle with new one, assemble those parts taking reverse steps to the above.

NOTE

Cares should be taken for other parts of Needle not to make them touch each other at parts holding. Any damage on Packing sliding surface of Needle may shorten the life of Packing.

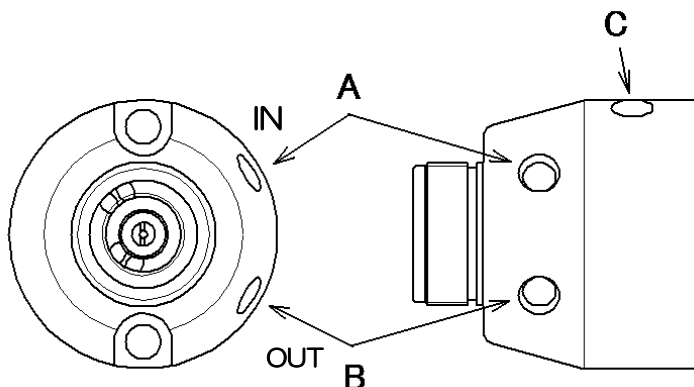


(4) Cleaning of paint passage in Gun Head

Remove Plugs (131E-002, 131F-002) at two points in the Head (1832-001) and remove paint sticking to inside of it.

NOTE

There are three Plug at three positions, each of which has its own function.



Plug **A**: 131E-002 (short) = For cleaning of paint passage at paint entrance

Plug **B**: 131F-002 (long) = For paint stop in non-circulation system

Plug **C**: 131E-002 (short) = For water drain from valve air

(5) Replacement of Cascade

1. Take up Cascade (145F-007) to upward from Body (137F-002) and remove three Screws, M2, (12-10204) from Lead Wire Fixing Terminal at rear end of the Cascade to remove the Wires. Then, the Cascade can be removed.
2. Lead Wires are combined with Connector (137F-006) as an assembly. To replace the Lead Wires, always remove the Cascade beforehand.

Terminal on Cascade	Lead Wire
GND	Green
AC	Yellow
RTN	Red

9.2 Replacement of Paint Hose

(1) To replace the Hose

1. Remove the Gun Body from its Bracket.
2. Loosen Paint Hose Fixing Pipe at rear side of the Body using spanner, and remove the Hose from Bracket.

(2) To change to paint circulation version

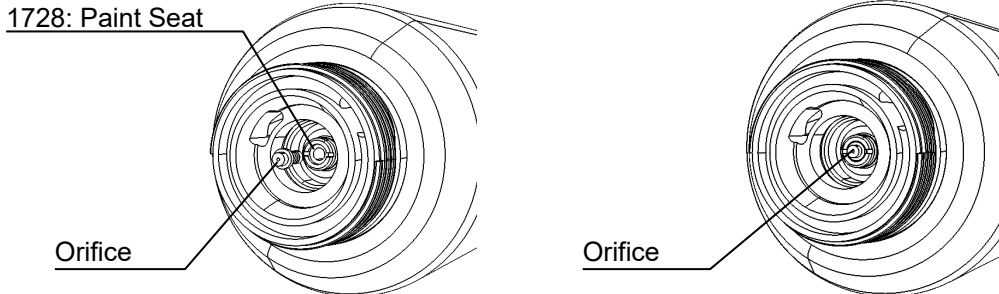
1. Remove Plug (B), put O Ring (130-7004) on another Plug, same as Plug (A) (131E-002), and fix it to Gun Head.
2. Remove Plug (137F-035) from Bracket and connect the required Paint Hose.

9.3 Replacement of Connecting Cable → Refer to Art.9 “How to Replace Parts”

9.4 Installing Orifice

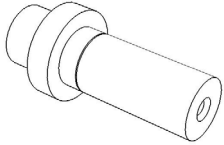
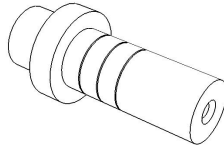
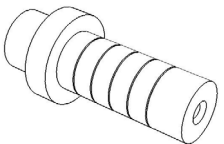
An orifice can be mounted on the gun as a part to adjust the discharge amount.

(1) Insert an orifice to the specified location as the Paint Nozzle Assy and charge electrode are removed.



(2) Install the Paint Nozzle Assy with the charge electrode mounted as being careful not to drop the installed orifice.

(3) While a φ0.7 orifice (Part No.: 1832-750) is included in the component parts as an accessory part, select an appropriate orifice, which is sold separately, in the table below according to the usage.

Diameter of orifice	Parts No.	How to identify	Remarks
φ0.5	1832-550	 Number of identification lines = 1	
φ0.7	1832-750	 Number of identification lines = 3	Initial component part
φ0.9	1832-950	 Number of identification lines = 5	

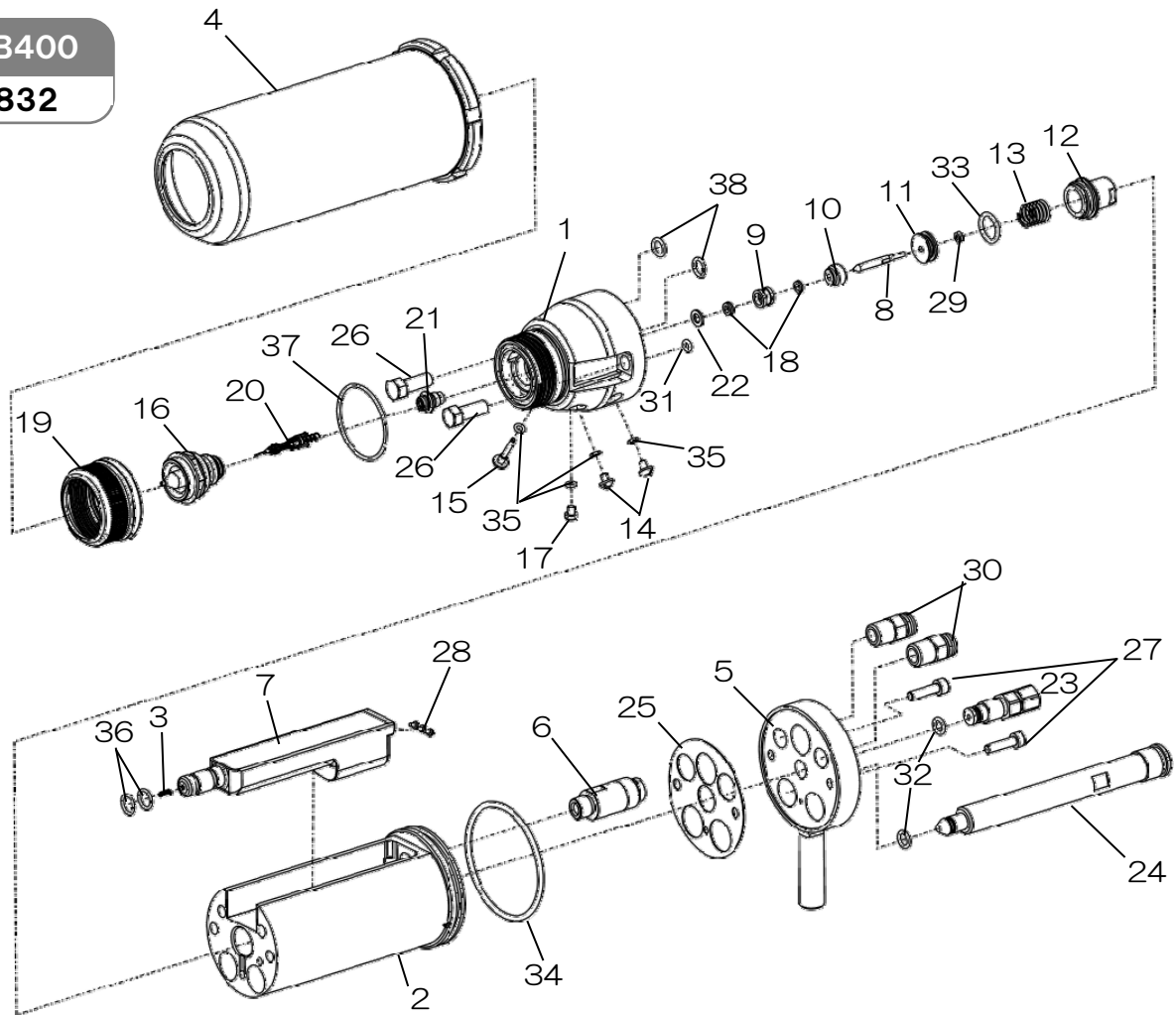
10

Exploded Diagram and Names of Parts

10.1. EAB400

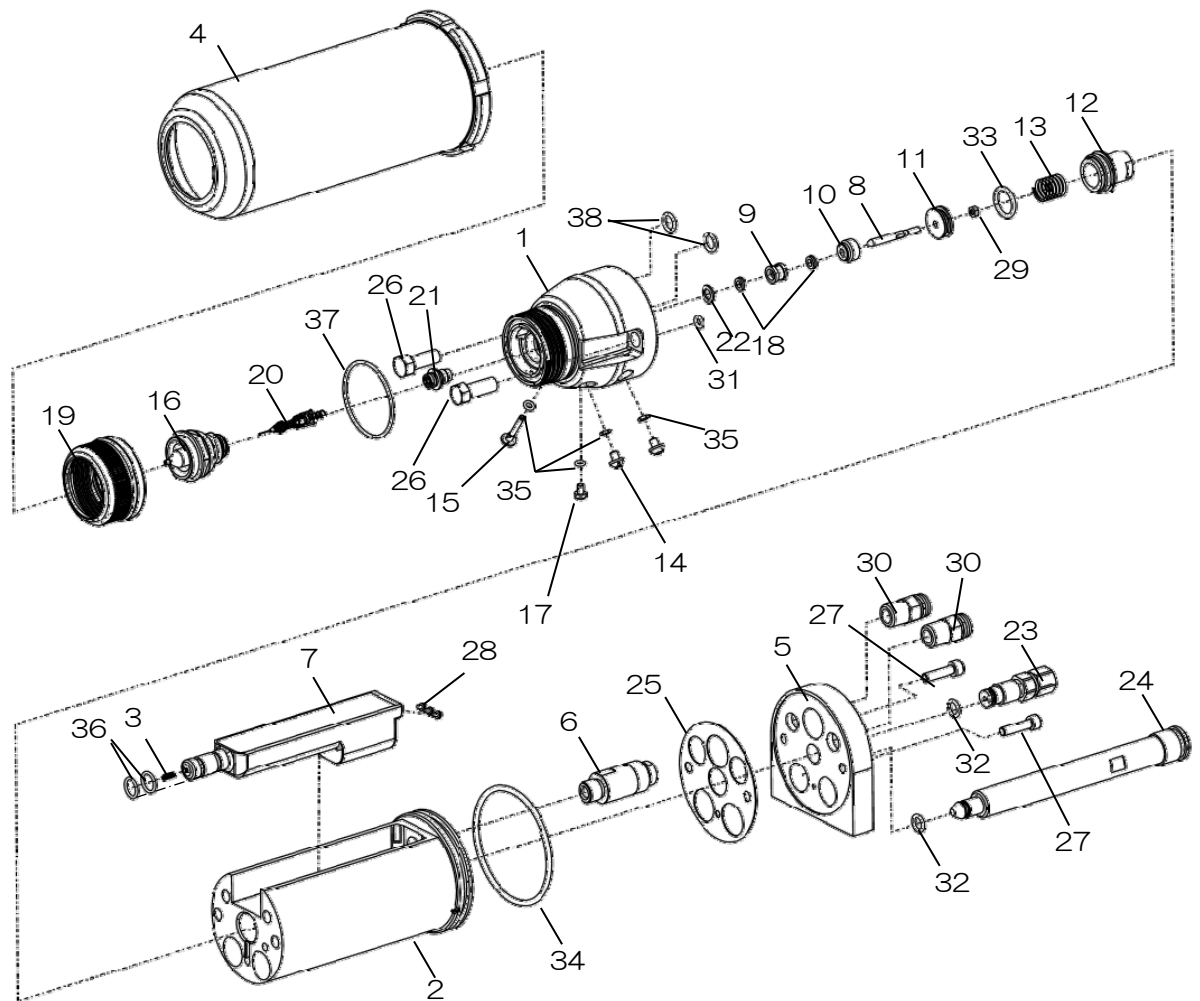
EAB400

1832



	Part name	Part No	Q'ty	Remark
1	1832-001	Head	1	
2	137F-002	Body	1	
3	1285-042	Spring	1	
4	1832-004	Shroud	1	
5	1832-005	Bracket	1	
6	137F-006	Connector	1	
7	145F-007	Cascade	1	
8	1832-008	Needle	1	
9	1832-009	Seal collar	1	
10	6008-007	Screw	1	
11	6008-008	Piston	1	
12	137F-012	Cap	1	
13	0721-020	Spring	1	
14	131E-002	Plug	2	
15	131F-002	Plug	1	
16	15F7	Paint Nozzle Assy	1	
17	364-0019	Cross Recessed Pan Screw	1	
18	152-0004	U packing	2	P4
19	1707	Retaining nut Assy	1	
20	1718	Charge Electrode	1	

	Part name	Part No	Q'ty	Remark
21	1728	Paint Seat	1	
22	137F-025	Packing	1	
23	137F-030	Joint	1	
24	137F-032	Plug	1	
25	137F-034	Gasket	1	
26	364-0030	Hex Socket Screw	2	M8×20L
27	03-70520	Hex Socket Screw	2	M5×20L
28	12-10204	Sems Screw 2P	3	M2×4L
29	15-70300	Hex nut	1	M3
30	376-0802	Quick Joint	2	
31	101-9004	O Ring	1	P4
32	101-9007	O Ring	2	P7
33	101-9014	O Ring	1	P14
34	102-9065	O Ring	1	G65
35	130-9004	O Ring	4	S4
36	130-9010	O Ring	2	S10
37	130-9042	O Ring	1	S42
38	101-9008	O Ring	2	P8
39	1719	Parts set	1	
40	35EE	Tool set	1	



番号	部品番号	品名	個数	備考
1	1832-001	Head	1	
2	137F-002	Body	1	
3	1285-042	Spring	1	
4	1832-004	Shroud	1	
5	1832-105	Bracket	1	
6	137F-006	Connector	1	
7	145F-007	Cascade	1	
8	1832-008	Needle	1	
9	1832-009	Seal collar	1	
10	6008-007	Screw	1	
11	6008-008	Piston	1	
12	137F-012	Cap	1	
13	0721-020	Spring	1	
14	131E-002	Plug	2	
15	131F-002	Plug	1	
16	15F7	Paint Nozzle Assy	1	
17	364-0019	Cross Recessed Pan Screw	1	
18	152-0004	U packing	2	P4
19	1707	Retaining nut Assy	1	
20	1718	Charge Electrode	1	

番号	部品番号	品名	個数	備考
21	1728	Paint Seat	1	
22	137F-025	Packing	1	
23	137F-030	Joint	1	
24	137F-032	Plug	1	
25	137F-034	Gasket	1	
26	364-0030	Hex Socket Screw	2	M8×20L
27	03-70520	Hex Socket Screw	2	M5×20L
28	12-10204	Sems Screw 2P	3	M2×4L
29	15-70300	Hex nut	1	M3
30	376-0802	Quick Joint	2	
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34	102-9065	O Ring	1	G65
35	130-9004	O Ring	4	S4
36	130-9010	O Ring	2	S10
37	130-9042	O Ring	1	S42
38	101-9008	O Ring	2	P8
39	1719	Parts set	1	
40	35EE	Tool set	1	

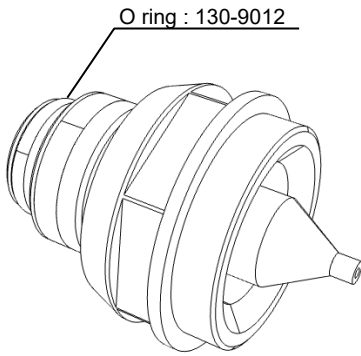
10.2 Replacement Parts

The replaceable parts in the part ASSY are shown below.

Regarding the parts that are not shown below, replace the Assy.

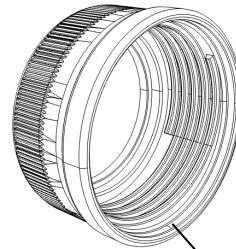
Paint Nozzle Assy

15F7



Retaining nut Assy

1707

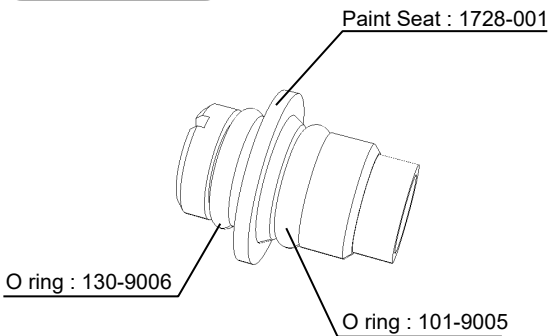


Ring seal : 373-0010

When Ring seal is removed from Retaining nut, please replace to new one

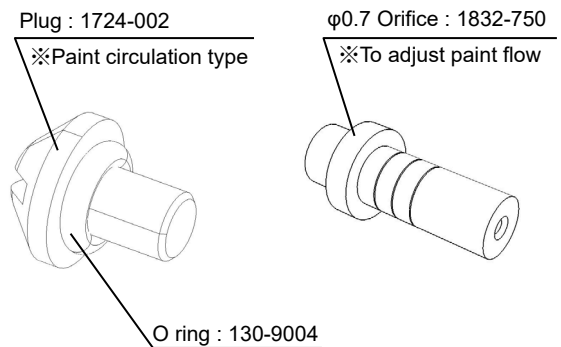
Paint Seat

1728



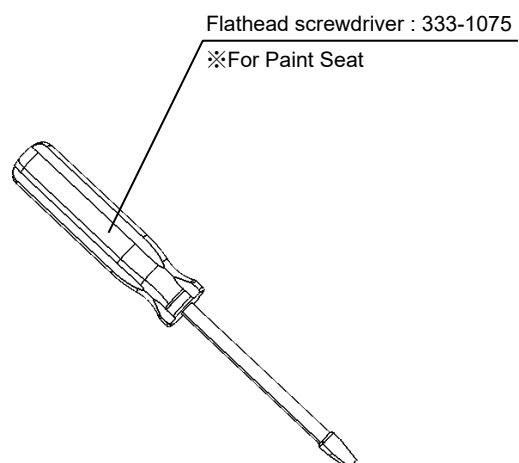
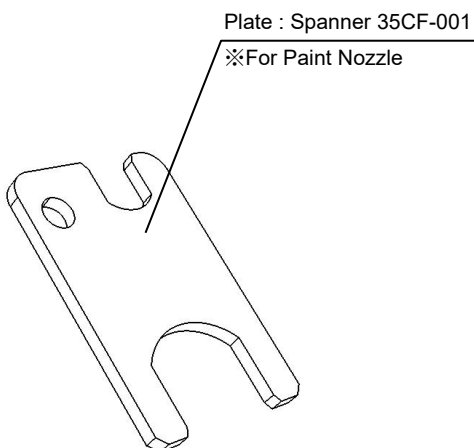
Parts Set

1719



Tool Set

35EE



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 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.

【MEMO】

-
- 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. Therefore, use of this equipment is limited to Japan only. In the rare eventuality of this equipment being used outside Japan, compliance with the safety standards of the relevant countries is of course mandatory.
-

17th Edition: October 7, 2025

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Chinese

17th Edition: October 7, 2025