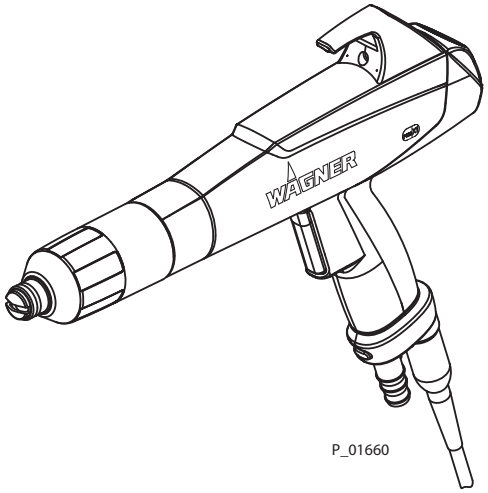
WAGNER

Original Service Manual

PEM-X1/PEM-X1 CG

Manual powder spray gun
Powder Cup Gun

Version 11/2016



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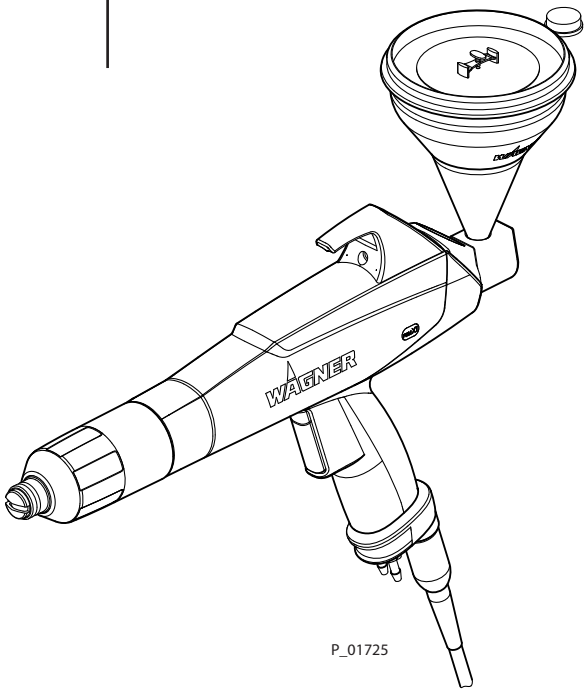

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CE 0102 Ex II 2D 2mJ

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1 ABOUT THESE INSTRUCTIONS

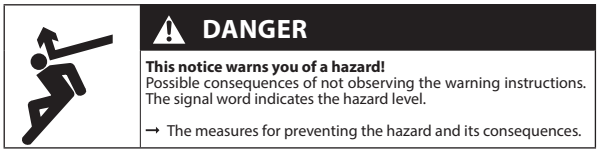
1.1 PREFACE

This service manual contains information and instructions for the operation, repair, service and maintenance of the spray gun.
This equipment can be hazardous if it is not operated in accordance with the information provided in this service manual and the corresponding operating manual.

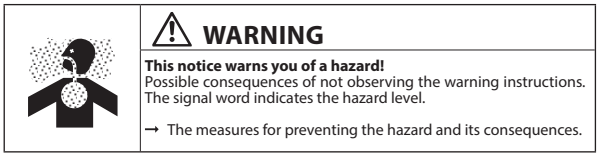
1.2 WARNINGS, NOTICES AND SYMBOLS IN THESE INSTRUCTIONS

Warning instructions in this operating manual highlight particular dangers to users and to the device and state measures for avoiding the hazard. These warning instructions fall into the following categories:

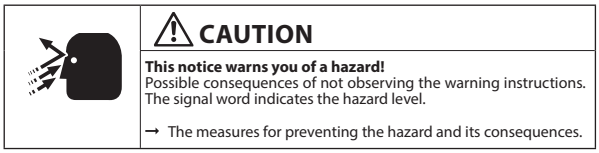
Danger - immediate risk of danger.
Non-observance will result in death or serious injury.



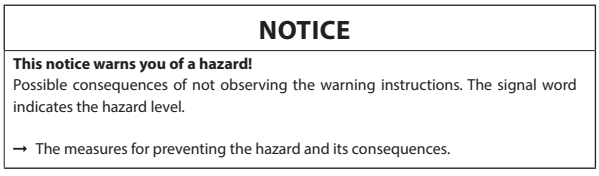
Warning - possible imminent danger.
Non-observance may result in death or serious injury.



Caution - a possibly hazardous situation.
Non-observance may result in minor injury.



Notice - a possibly hazardous situation.
Non-observance may result in damage to property.



Note - provides information about particular characteristics and how to proceed.

1.3 LANGUAGES

The service manual is available in the following languages:

German	2334103	English	2334104

PEM-X1:
The operating manual is available in the following languages:

German	2326959	English	2326960
French	2326961	Italian	2326962
Spanish	2326963	Russian	2333344
Chinese	2333345		

PEM-X1 CG:
The operating manual is available in the following languages:

German	2326019	English	2326020
French	2326021	Italian	2326022
Spanish	2326023	Russian	2333347
Chinese	2333348		

1.4 ABBREVIATIONS

Stk	Number of pieces
Pos	Position
K	Marking in the spare parts lists
Order No.	Order number
ET	Spare part
SW	Wrench size

2 CORRECT USE

2.1 DEVICE TYPE

Powder spray guns for manual coating of grounded work pieces

2.2 CORRECT USE

The PEM-X1 and PEM-X1 CG powder spray guns are designed for the electrostatic coating of work pieces with organic powders. Any other form of use is considered non-intended use. WAGNER disclaims liability for any damage resulting from non-intended use.
The spray guns may only be used in spray areas equipped in accordance with EN 50177 or under equivalent ventilation conditions.

2.3 USE IN AN EXPLOSION HAZARD AREA

These type A-P electrostatic powder spray guns are suitable for processing industrial powder lacquers for coating electrically conductive objects and can be used in potentially explosive areas (zone 22). (See Chapter 3.1 Explosion Protection Identification).

2.4 SAFETY PARAMETERS

The powder spray guns are only suitable for the application of powder lacquer.
J. Wagner AG forbids any other use!
The powder spray guns may only be operated under the following conditions if:

- the operating staff have previously been trained on the basis of this operating manual,
- the safety regulations listed in this service manual are observed,
- the operating, maintenance and repair information in this service manual is observed,
- and the statutory requirements and accident prevention regulations standards in the country of use are observed.

The powder spray guns may only be used if all parameters are set and all measurements/ safety checks are carried out correctly.

2.5 PROCESSIBLE WORKING MATERIALS

- Types of powder which can be charged electrostatically
- Metallic powder

2.6 REASONABLY FORESEEABLE MISUSE

The following is prohibited:

- coating work pieces which are not grounded,
- unauthorized conversions and modifications to the spray gun,
- processing liquid or similar coating products,
- using defective components or spare parts.

The forms of misuse listed below may result in physical injury or property damage:

- Use of damp powder lacquer
- Incorrectly set values for powder discharge
- Incorrectly set electrostatic values
- Use of defective components and accessories
- Use for foodstuffs
- Use in the pharmaceutical sector
- Use with non-authorized control units

2.7 RESIDUAL RISKS

Residual risks are risks which cannot be ruled out even in the event of correct use.
If necessary, warning and prohibition signs at the relevant points of risk indicate residual risks.

Residual risk	Source	Consequences	Specific measures	Lifecycle phase
Skin contact with powder lacquers and cleaning agents	Handling powder lacquers and cleaning agents	Skin irritation, allergies	Wear protective clothing Observe safety data sheets	Operation, maintenance, Disassembly
Powder lacquer in air outside the defined working area	Lacquering outside the defined working area	Inhalation of substances hazardous to health	Observe working and operating instructions	Operation, Maintenance

3 IDENTIFICATION

3.1 EXPLOSION PROTECTION IDENTIFICATION

Gun type:	PEM-X1/PEM-X1 CG
Manufacturer:	Wagner International AG
	CH-9450 Altstätten, Switzerland
CE 0102 Ex	II 2 D 2mJ 85 °C
CE:	European Communities
0102:	Number of notified body which issues the recognition of quality assurance in production
Ex:	Symbol for explosion protection
II:	Device class II
2:	Category 2
D:	Ex-atmosphere dust
2mJ:	Maximum ignition energy 2 mJ
85 °C:	Maximum surface temperature

The EC type examination certificate PTB 12 ATEX 5002 can be found in Chapter 10.5.

3.2 PERMISSIBLE DEVICE COMBINATIONS

⚠ WARNING

Incorrect use!
Risk of injury and damage to the device.

→ Only connect original WAGNER devices to the PEM-X1/PEM-X1 CG powder spray gun.

The PEM-X1/PEM-X1 CG powder spray gun may only be connected to the control units listed below:

- EPG-Sprint X with the corresponding PI-F1/HiCoat ED-F powder injector
- EPG Sprint with PI-F1* powder injector
- EPG-S2 with PI-F1* powder injector

* The remote control function of the PEM-X1 spray gun is not available when using these control units.

4 GENERAL SAFETY INSTRUCTIONS

4.1 SAFETY INSTRUCTIONS FOR THE OPERATOR

- → Keep this operating manual at hand near the device at all times.
- → Always follow local regulations concerning occupational safety and accident prevention.

4.1.1 ELECTRICAL DEVICES AND EQUIPMENT

- → To be provided in accordance with the local safety requirements with regard to the operating mode and ambient influences.
- → May only be maintained by skilled electricians.
- → Must be operated in accordance with the safety regulations and electrotechnical regulations.
- → Must be repaired immediately in the event of problems.
- → Must be decommissioned if they pose a hazard.
- → Must be de-energized before work is commenced on active parts.
- → Secure the device against being switched back on without authorization. Inform staff about planned work.
- → Observe electrical safety regulations.

4.1.2 PERSONNEL QUALIFICATIONS

- → Ensure that the device is operated, maintained and repaired only by trained persons.

4.1.3 SAFE WORK ENVIRONMENT

- → The floor in the working area must be electrostatically conductive (measurements according to EN 1081 and EN 61340-4-1).
- → The footwear worn by the operators must comply with the requirements of EN ISO 20344. The measured insulation resistance must not exceed 100 MΩ.
- → The protective clothing, including gloves, must comply with the requirements of EN ISO 1149-5. The measured insulation resistance must not exceed 100 MΩ.
- → The powder release must be electrically interlocked with the powder spray system's exhaust air equipment.
- → Excess coating product (overspray) must be collected up safely.
- → Ensure that there are no ignition sources such as naked flames, sparks, glowing wires, or hot surfaces in the vicinity. No smoking.
- → Maintain sufficient quantities of suitable fire extinguishers and ensure that they are serviceable.
- → The operating company must ensure that an average concentration of powder lacquer in the air does not exceed 50% of the lower explosion limit (LEL = max. permitted concentration of powder to air). If no reliable LEL value is available, the average concentration must not exceed 10 g/m^3.

4.2 SAFETY INSTRUCTIONS FOR STAFF

→ Always follow the information in this manual, particularly the general safety instructions and the warning instructions.
→ Always follow local regulations concerning occupational safety and accident prevention.
→ Under no circumstances may people with pacemakers enter the area where the high-voltage field between the spray gun and the work piece to be coated builds up!

4.2.1 SAFE HANDLING OF WAGNER POWDER SPRAY DEVICES

→ Do not point spray guns at people.
→ Before all work on the device, in the event of work interruptions and functional faults:
- Switch off the energy/compressed air supply.
- Secure the spray gun against actuation.
- Relieve pressure on spray gun and device.
- In case of functional faults: Identify and correct the problem, proceed as described in the "Fault Rectification" chapter.

4.2.2 GROUNDING THE DEVICE

The electrostatic charge may, in certain cases, give rise to electrostatic charges on the device. This may result in the formation of sparks or flames when discharging.
→ Ensure that the device is grounded before each coating process.
→ Ground the work pieces to be coated.
→ Ensure that all persons inside the working area are grounded, e.g. by wearing electrostatically conductive shoes.
→ The functionality of grounding cables must be checked regularly (see EN 60204).

4.2.3 PRODUCT HOSES

→ Only use an original WAGNER powder hose.

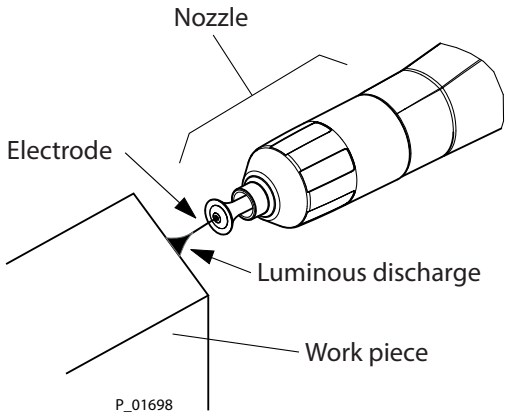
4.2.4 CLEANING

- → Before starting cleaning or any other manual work, the high voltage in the spray area must be shut down and locked to prevent it from being switched back on.
- → Lock the compressed air supply and decompress the device.
- → Secure the device against being switched back on without authorization.
- → Use only electrically conducting and grounded tanks for cleaning fluids.
- → Preference should be given to non-flammable cleaning fluids.
- → Flammable cleaning liquids may only be used if, after switching off the high voltage, all high-voltage conducting parts are discharged to a discharge energy of less than 0.24 mJ before they can be accessed.
  Most flammable solvents have an ignition energy of around 0.24 mJ or 60 nC.
- → The cleaning agent's flash point must be at least 15 K above the ambient temperature.
- → Only mobile industrial vacuum cleaners of design 1 (see EN 60335-2) may be used to remove dust deposits.

4.2.5 HANDLING POWDER LACQUERS

- → When preparing or processing the powder and cleaning the device, take note of the processing regulations laid down by the manufacturer of the powder lacquers being used.
- → Take note of the manufacturer's instructions and the relevant environmental protection regulations when disposing of powder lacquers.
- → Implement the prescribed safety measures, in particular the wearing of safety glasses and safety clothing as well as the use of protective hand cream.
- → Use a mask or breathing apparatus if necessary.
- → To ensure sufficient protection of health and the environment, only operate the device in a powder booth or on a spray wall with activated ventilation (exhaust air).

4.3 INFORMATION ABOUT SAFE DISCHARGES



With the high voltage switched on, a luminous or corona discharge occurs at the electrode tip; this can only be seen in the dark. This physical effect can be seen when the electrode is brought near the grounded work piece. This luminous discharge does not involve any ignition energy and has no effect on system handling. When the electrode approaches the work piece, the control unit automatically reduces the high voltage to a safe value. If you touch plastic parts of the spray gun with your finger, harmless discharges may occur due to the high-voltage field around the spray gun (so-called brush discharges). However, these do not contain any ignition energy.

4.4 PROTECTIVE AND MONITORING EQUIPMENT

⚠ WARNING

Incorrect use!
Risk of injury and damage to the device.

- → Protective and monitoring equipment must not be removed, modified or rendered unusable.
- → Regularly check for perfect functioning.
- → If defects are detected on protective and monitoring equipment, the system must not be operated until these defects are remedied.

To prevent electrostatic flashover, the union nut for securing the nozzles is designed in a certain geometric shape.
This shape, together with the shape of the fan spray nozzle or deflector cone sleeve, prevents the nozzles from coming loose unintentionally.
To ensure safety, only use genuine WAGNER spare parts!

5 SPARE PARTS

5.1 HOW CAN SPARE PARTS BE ORDERED?

Always supply the following information to ensure delivery of the right spare part:

Order number, designation and quantity

The quantity need not be the same as the number given in the quantity column "Stk" on the list. This number merely indicates how many of the respective parts are used in each component.

The following information is also required to ensure smooth processing of your order:

- Address for the invoice
- Address for delivery
- Name of the person to be contacted in the event of any queries
- Type of delivery (normal mail, express delivery, air freight, courier, etc.)

Identification in spare parts lists

Explanation of column "K" (labeling) in the following spare parts lists.

◆ = Wearing parts
Note: These parts are not covered by warranty terms

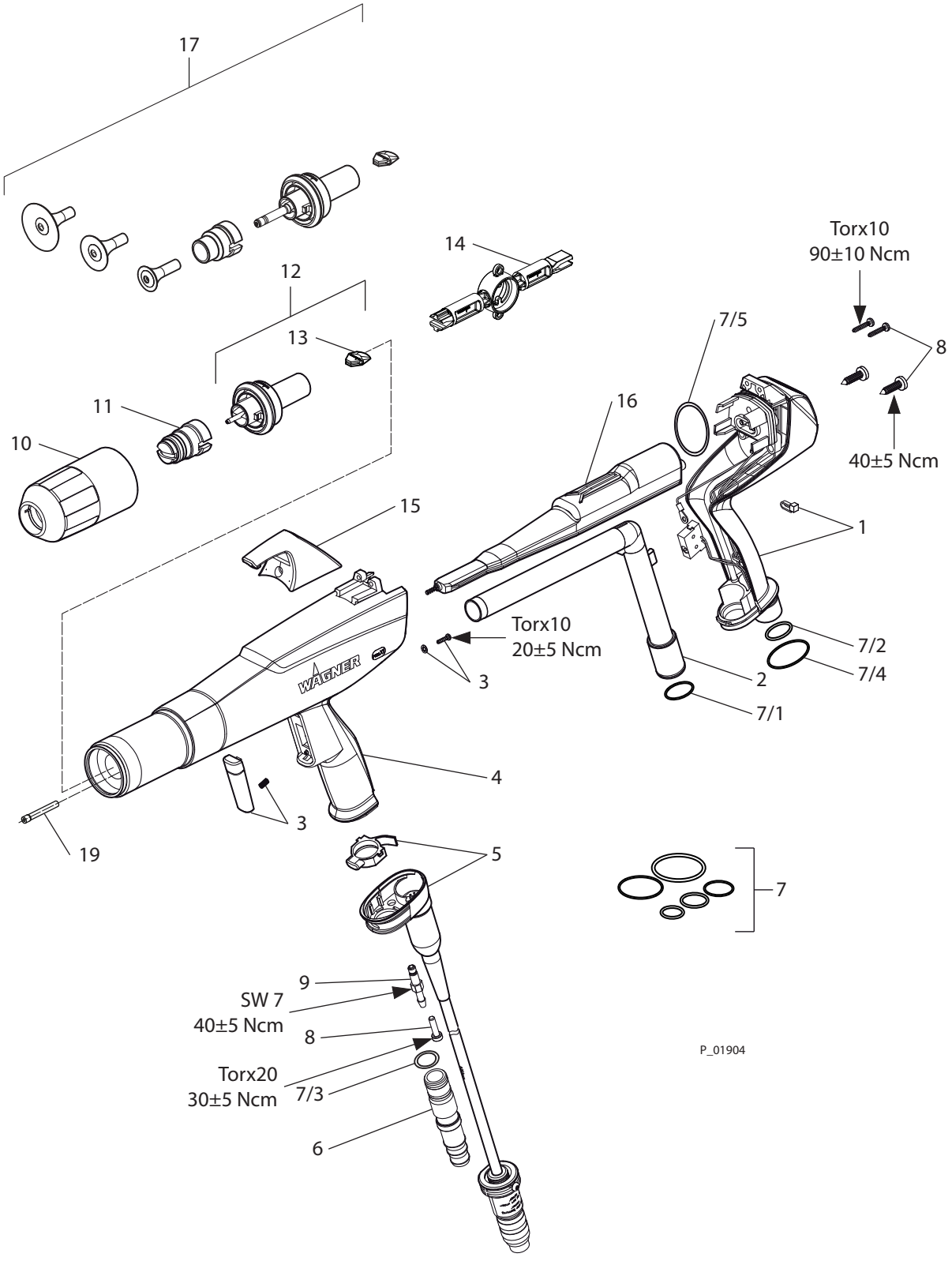
● = Not part of standard equipment, available, however, as additional extra.

⚠ WARNING

Incorrect maintenance/repair!
Risk of injury and damage to the device.

→ Repairs and part replacement may only be carried out by specially trained staff or a WAGNER service center.
→ Before all work on the device and in the event of work interruptions:
- Switch off the energy/compressed air supply.
- Ensure that all system components are grounded.
- Secure the device against being switched back on without authorization.
→ Observe the operating and service manual for all work.

5.2 PEM-X1 CORONA MANUAL GUN

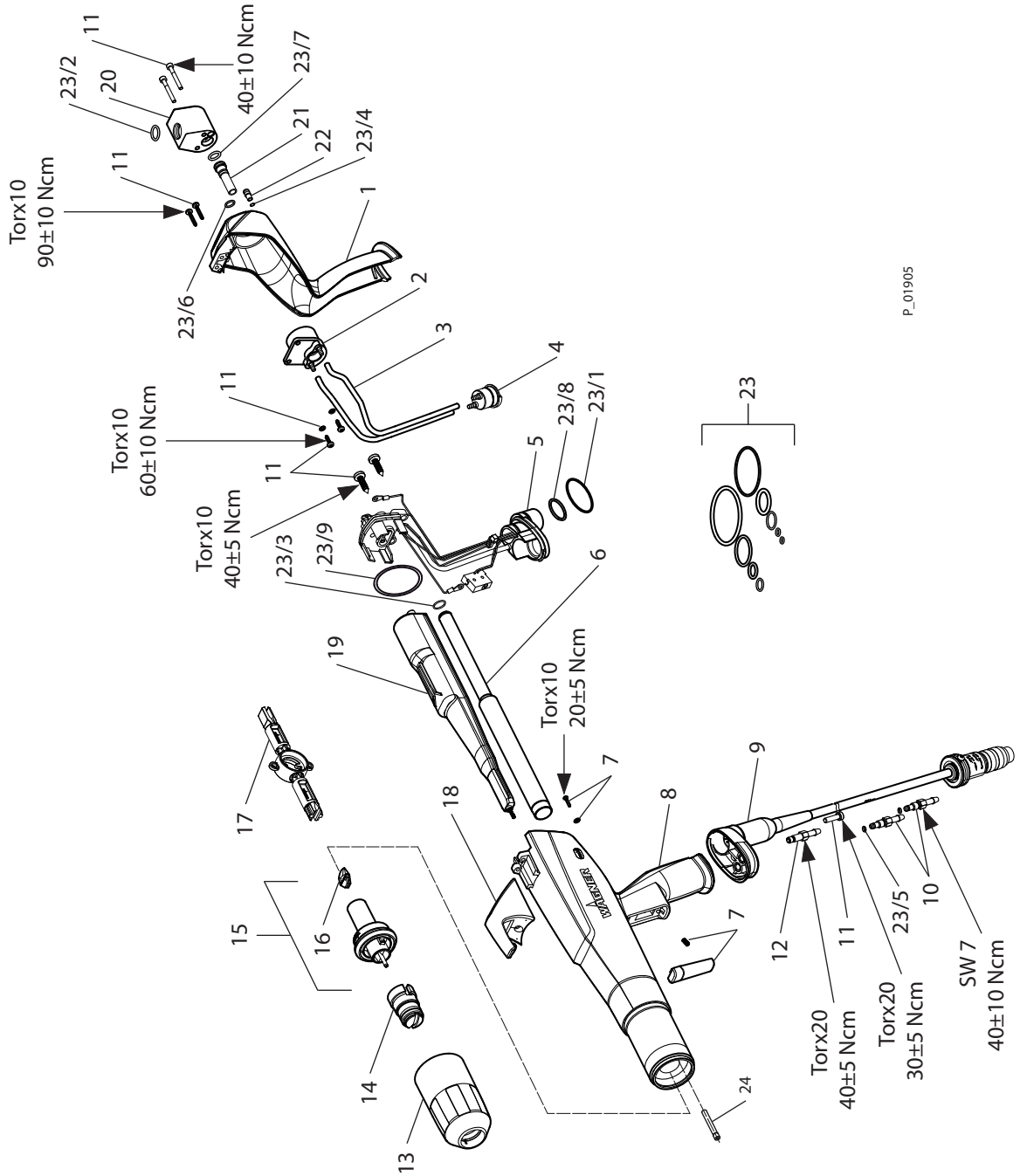


PEM-X1 manual gun

Pos	K		Stk	Order No.	Designation
1			1	2334277	PEM-X1 ET cable assembly
2			1	2324123	PEM-X1 ET powder tube
3	◆		1	2334276	PEM-X1/PEM-X1 CG ET trigger
4			1	2332540	PEM-X1 ET housing
5	◆		1	2334275	PEM-X1 ET 6m, 19.69 ft manual gun cable
5	◆		1	2334568	PEM-X1 ET 15m, 49.21 ft manual gun cable
6	◆	★	1	2322761	Hose fitting, D10-D12, complete
7	◆	★	1	2334341	PEM-X1 ET O-ring set
8			1	2334316	PEM-X1 ET screw set, consists of:
			1	--	Socket cap screw with 6lobe socket
			2	--	Plastic tapping screw
			2	--	PT screw fillister head Torx®
9			1	2321978	Hose fitting
10			1	2320464	Union nut, X1
11	◆		1	2321976	Fan spray nozzle, X1, complete
12	◆	★	1	2322529	Electrode holder, X1 F ET
13	◆		1	2320488	Replacement protective wedge, X1
14			1	2324205	Wedge tool, X1
15			1	2320330	Gun hook, X1 ET
16			1	2324136	Negative cascade, X1 ET
17			1	2322493	Electrode holder X1 R with nozzle (with PEM-X1 R design)
19			1	2320305	Filter element

◆ Wearing parts
● Not part of the standard equipment, but available as a special accessory
★ Only available as a set

5.3 PEM-X1 CG CORONA CUP GUN

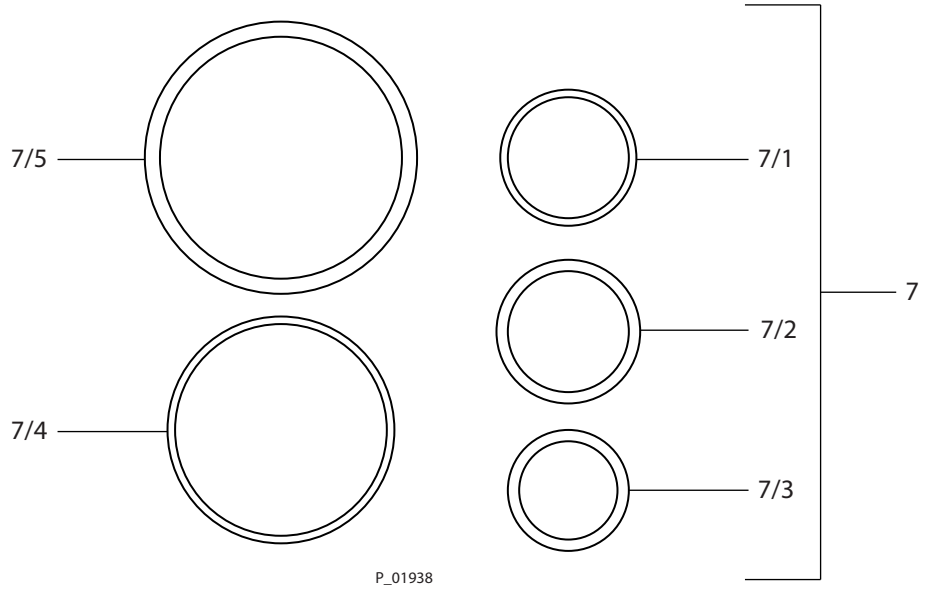


PEM-X1 CG cup gun

Pos	K	Stk	Order No.	Designation
1		1	2320409	Handle - cup
2		1	2324128	ET air diffuser
3		1	2334300	Hose kit, PEM-X1 CG ET
4		1	2334299	PEM-X1 CG connecting part
5		1	2334345	PEM-X1 CG ET cable assembly
6	◆	1	2324134	PEM-X1 ET powder tube - cup
7		1	2334276	PEM-X1/PEM-X1 CG ET trigger
8		1	2332551	PEM-X1 CG ET housing
9		1	2321908	PEM-X1 manual gun cable, cup
10		1	2334309	PEM-X1 CG ET hose fitting consists of:
	◆	1	--	Hose fitting
		1	--	O-ring
11	★	1	2334320	PEM-X1 CG ET screw set, consists of:
		1	--	Socket cap screw with 6lobe socket
		2	--	PT screw fillister head Torx®
		2	--	Hexagon socket cylinder head screw
		2	--	Plastic tapping screw
		2	--	PT screw fillister head Torx®
		2	--	Lock washer, toothed inside
12		1	2321978	Hose fitting
13		1	2320464	Union nut, X1
14	◆	1	2321976	Fan spray nozzle, X1, complete
15	◆ ★	1	2322529	Electrode holder, X1 F ET
16	◆	1	2320488	Replacement protective wedge, X1
17		1	2324205	Wedge tool, X1
18		1	2320330	Gun hook, X1 ET
19		1	2324136	Negative cascade, X1 ET
20		1	2324132	Connecting part ET
21		1	2324133	Collector nozzle ET
22		1	2324135	Connecting tube ET
23	◆ ★	1	2334343	PEM-X1 CG ET O-ring set
24		1	2320305	Filter element

◆ Wearing parts
● Not part of the standard equipment, but available as a special accessory
★ Only available as a set

5.4 PEM-X1 ET O-RING SET

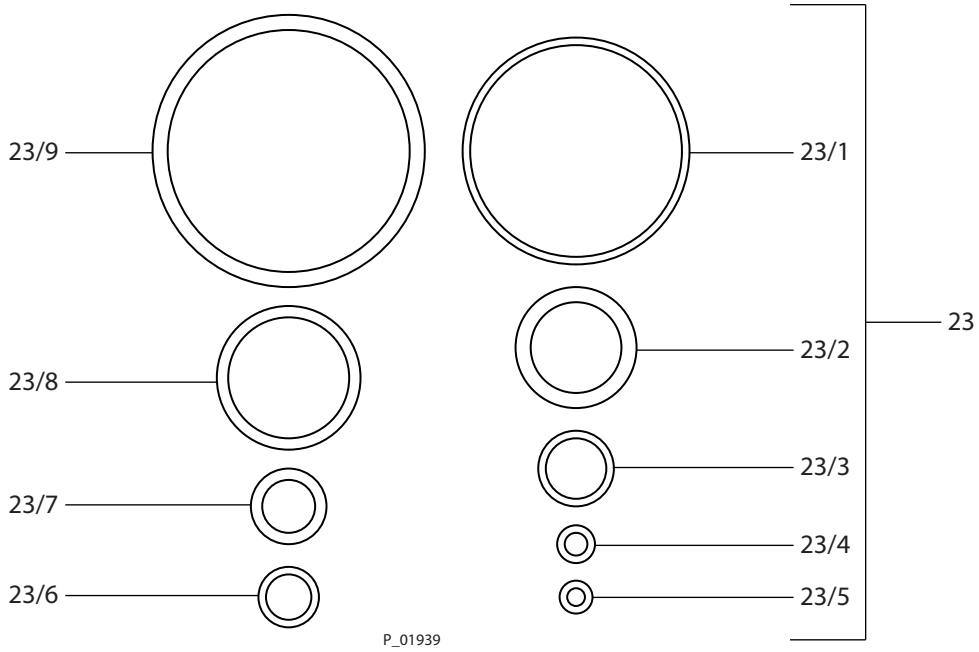


PEM-X1 ET O-ring set

Pos K	Stk	Order No.	Designation
7	1	2334341	O-ring set PEM-X1 ET consists of:
7/1	1	--	O-ring powder tube 16 x 1
7/2	1	--	O-ring cable assembly 16 x 1.5
7/3	2	--	O-ring hose take-up 13 x 1.5
7/4	1	--	O-ring cable assembly 28 x 1
7/5	1	--	O-ring cascade plug 32 x 2

◆ Wearing parts
● Not part of the standard equipment, but available as a special accessory
★ Only available as a set

5.5 PEM-X1 CG ET O-RING SET

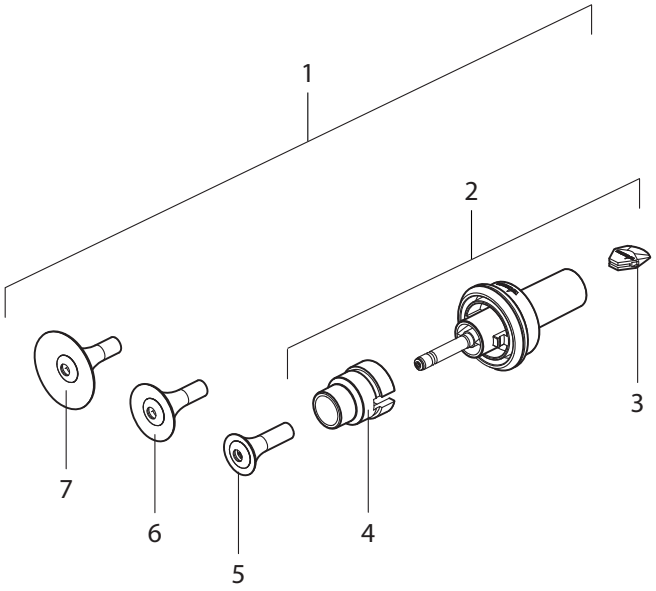


PEM-X1 CG ET O-ring set

Pos K	Stk	Order No.	Designation
23	1	2334343	PEM-X1 CG ET O-ring set consists of:
23/1	1	--	O-ring cable assembly 28 x 1
23/2	2	--	O-ring connecting part 12 x 2
23/3	1	--	O-ring powder tube 8 x 1
23/4	1	--	O-ring connecting tube 3 x 1
23/5	2	--	O-ring hose fitting 2.35 x 1
23/6	1	--	O-ring collector nozzle 6 x 1
23/7	1	--	O-ring collector nozzle 7 x 1.5
23/8	1	--	O-ring cable assembly 16 x 1.5
23/9	1	--	O-ring cascade plug 32 x 2

◆ Wearing parts
● Not part of the standard equipment, but available as a special accessory
★ Only available as a set

5.6 ELECTRODE HOLDER, X1 R



Electrode holder, X1 R, with nozzles

Pos	K	Stk	Order No.	Designation
1		1	2322493	Electrode holder, X1 R, with nozzle
2		1	2322490	Electrode holder, X1 R ET
3	◆	1	2320488	Replacement protective wedge, X1
4	◆	1	2320503	Deflector cone sleeve, X1
5	◆	1	2321981	Deflector cone, D18, complete
6	◆	1	2321980	Deflector cone, D25, complete
7	◆	1	2321171	Deflector cone, D34, complete

◆ Wearing parts
● Not part of the standard equipment, but available as a special accessory
★ Only available as a set

6 REPAIRS TO THE PEM-X1 MANUAL SPRAY GUN

6.1 PERSONNEL QUALIFICATIONS

Only specialist staff trained by WAGNER or WAGNER staff may carry out maintenance or repair work.

The following hazards may arise during repair work:

- Health hazard from inhaling powder lacquer
- Use of unsuitable tools and aids

Once the repair work is complete, the device must be checked by a qualified person to ensure a reliable condition.

6.2 SAFETY INSTRUCTIONS

DANGER

Explosive powder/air mixes!
Danger to life and equipment damage.

→ Before starting cleaning or other manual work, the high voltage must be shut down and locked to prevent it from being switched back on!
→ The spray gun must be separated from the high-voltage supply before any cleaning work is started!
→ Use only electrically conductive tanks for cleaning liquids! Ground the tank!
→ Preference should be given to non-flammable cleaning fluids.
→ Flammable cleaning liquids may only be used if, after switching off the high voltage, all high-voltage conducting parts are discharged to a discharge energy of less than 0.24 mJ before they can be accessed.
Most flammable solvents have an ignition energy of around 0.24 mJ or 60 nC.
→ The cleaning agent's flash point must be at least 15 K above the ambient temperature.
→ Only mobile industrial vacuum cleaners of design 1 (see EN 60335-2) may be used to remove dust deposits.

DANGER

Incorrect maintenance/repair!
Danger to life and equipment damage.

→ Repair or replacement of devices or parts of devices are only allowed to be performed outside the hazard area by qualified personnel.

DANGER

Incorrect maintenance/repair!
Risk of injury and damage to the device.

→ Repairs and part replacement may only be carried out by specially trained staff or a WAGNER service center.
→ Before all work on the device and in the event of work interruptions:
- Switch off the energy/compressed air supply.
- Relieve spray gun and device pressure.
- Secure the spray gun against actuation.
→ Observe the operating and service manual for all work.

WARNING

Incorrect maintenance!
Risk of injury and damage to the device.

→ If contact with powder products or cleaning agents causes skin irritation, appropriate precautionary measures must be taken, e.g., wearing protective clothing.
→ The footwear worn by operating staff must comply with EN ISO 20344. The measured insulation resistance must not exceed 100 megohms.
→ The protective clothing, including gloves, must comply with EN ISO 1149-5. The measured insulation resistance must not exceed 100 megohms.

6.3 REQUIRED TOOLS AND AIDS

In order to repair the cup gun, the following tools are needed:

●	Open-end wrench, SW 7
●	Allen wrench, SW 2.5
●	Wrench Torx® 8
●	Wrench Torx® 10
●	Wrench Torx® 20
●	Screwdriver 0.5x3.5
●	Size 2 recessed head screw driver
●	Mounting tool for switch (Order No. 2334252, optionally available)
●	Side cutters
●	EPG Sprint X control unit (Order No. 2324731)
●	High-voltage tester HV 200 N (Order No. 259010)
●	Insulation measuring device METRISO 1000D Metrawatt GmbH
●	Multimeter Fluke 87

Brand notice:

The brands specified in this document are property of the respective owners. , for example, is a registered brand of Camcar.

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6.4 REPLACING THE GUN CABLE


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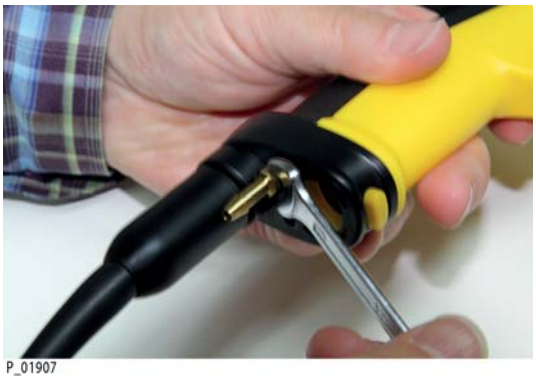
Procedure:

1. Press the coupling button and pull out the hose take-up.
2. Pull off the atomizing air hose.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3. Unscrew atomizing air connection (size 7 open-end wrench).


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4. Loosen the screw with a size 20 Torx® wrench and unscrew it.

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5. Carefully pull the gun cable out of the gun housing.

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6. Carefully insert the new gun cable in the gun housing.


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7. Fasten the gun cable to the gun housing with a screw (tightening torque 30±5 Ncm).


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8. Screw in the hose fitting for the atomizing air (tightening torque 40±5 Ncm).

   Note:

   Check, by pressing the button, if the slider can be operated.


P_01906

9. Insert the hose take-up into the gun housing.
10. Attach atomizing air hose.

6.5 REPLACING THE POWDER TUBE


P_01906

Procedure:

1. Loosen the union nut on the nozzle system and pull the nozzle system out of the gun housing.
2. Press the coupling button and pull out the hose take-up.
3. Pull off the atomizing air hose.


P_01907

4. Unscrew atomizing air connection (size 7 open-end wrench).


P_01908

5. Loosen the screw with a size 20 Torx® wrench and unscrew it.

P_01909

6. Carefully pull the gun cable out of the gun housing.


P_01910

7. The slider can now be replaced if necessary. Insert the slider as shown in the picture.


P_01911

8. Unscrew the screws on the gun hook with a size 10 Torx® wrench.


P_01912

9. Carefully remove the handle from the gun housing.


P_01913

10. Pull the powder tube out of the gun housing as shown in the picture.

    Note:

    Under certain circumstances, it is necessary to cut the upper cable tie in order to pull the powder tube out.

    After assembling the powder tube, bundle the cables again with a cable tie.

11. Insert new powder tube into the gun housing, slide it forward up to stop and gently press it in.

P_01914

12. Reattach the handle to the gun housing.
    In doing so, make sure that the entire handle is flush with the gun housing.


P_01911

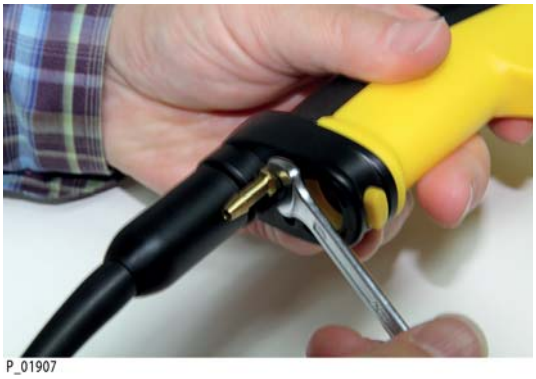
13. Fasten the handle to the gun housing by means of the screws (tightening torque 90±5 Ncm).

P_01909

14. Carefully plug the gun cable into the gun housing.


P_01908

15. Fasten the gun cable to the gun housing with a screw (tightening torque 30±5 Ncm).


P_01907

16. Screw in the hose fitting for the atomizing air (tightening torque 40±5 Ncm).


P_01906

17. Attach atomizing air hose.
18. Insert the hose take-up into the gun housing.
19. Mount the nozzle system.

6.6 REPLACING THE CASCADE


P_01906

Procedure:

1. Loosen the union nut on the nozzle system and pull the nozzle system out of the gun housing.
2. Press the coupling button and pull out the hose take-up.
3. Pull off the atomizing air hose.


P_01907

4. Unscrew atomizing air connection (size 7 open-end wrench).


P_01908

5. Loosen the screw with a size 20 Torx® wrench and unscrew it.

P_01909

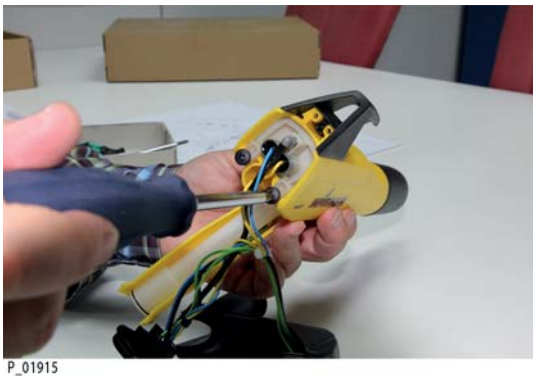
6. Carefully pull the gun cable out of the gun housing.


P_01911

7. Unscrew the screws on the gun hook with a size 10 Torx® wrench.


P_01912

8. Carefully remove the handle from the gun housing.


P_01915

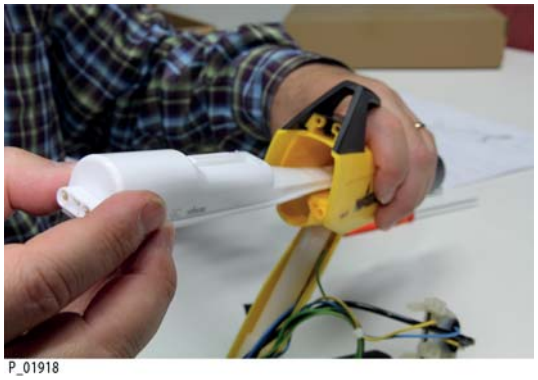
9. Unscrew the screws on the cascade plug.


P_01916

10. Carefully pry the cascade plug out of the gun housing using a screw driver.


P_01917

11. Pull the cascade plug out of the gun housing.


P_01918

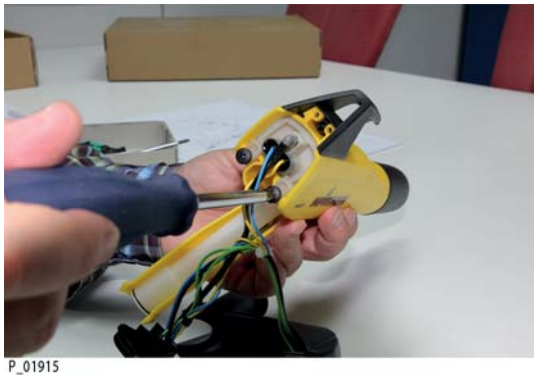
12. Pull the cascade out of the gun housing.
13. Insert a new cascade in the gun housing.


P_01917

14. Coat the O-ring on the cascade plug lightly with Vaseline.
15. Plug the cascade plug into the gun housing.

    Note:

    Do not wipe the O-ring in the lower area while inserting the cascade plug.


P_01915

16. Fix the cascade plug on the gun housing with screws (tightening torque 40±5 Ncm).

P_01914

17. Reattach the handle to the gun housing.
    In doing so, make sure that the entire handle is flush with the gun housing.


P_01911

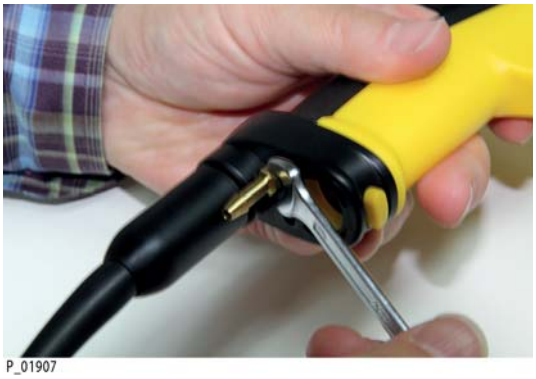
18. Fasten the handle to the gun housing by means of the screws (tightening torque 90±5 Ncm).

P_01909

19. Carefully plug the gun cable into the gun housing.


P_01908

20. Fasten the gun cable to the gun housing with a screw (tightening torque 30±5 Ncm).


P_01907

21. Screw in the hose fitting for the atomizing air (tightening torque 40±5 Ncm).


P_01906

22. Insert the hose take-up into the gun housing.
23. Attach atomizing air hose.
24. Mount the nozzle system.

6.7 REPLACING THE CABLE ASSEMBLY WITH SWITCH


P_01906

Procedure:

1. Loosen the union nut on the nozzle system and pull the nozzle system out of the gun housing.
2. Press the coupling button and pull out the hose take-up.
3. Pull off the atomizing air hose.


P_01907

4. Unscrew atomizing air connection (size 7 open-end wrench).


P_01908

5. Loosen the screw with a size 20 Torx® wrench and unscrew it.

P_01909

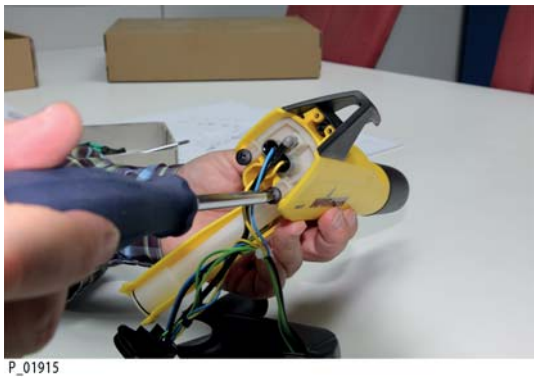
6. Carefully pull the gun cable out of the gun housing.


P_01911

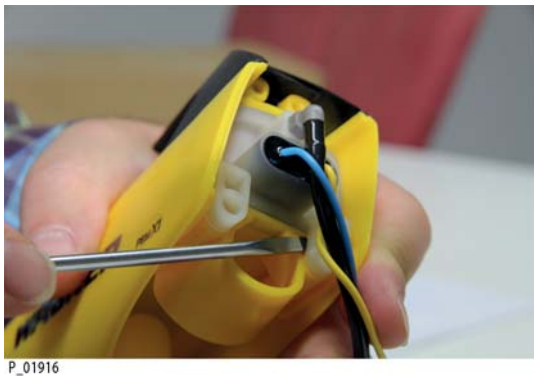
7. Unscrew the screws on the gun hook with a size 10 Torx® wrench.


P_01912

8. Carefully remove the handle from the gun housing.


P_01915

9. Unscrew the screws on the cascade plug.


P_01916

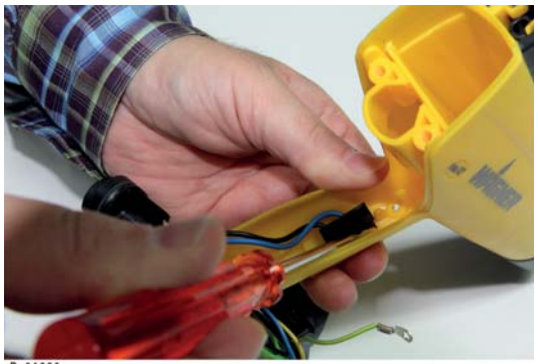
10. Carefully pry the cascade plug out of the gun housing using a screw driver.


P_01917

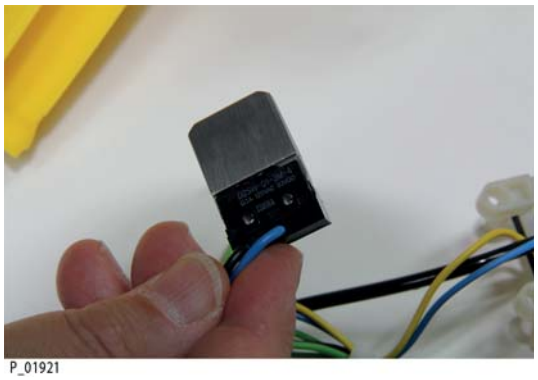
11. Pull the cascade plug out of the gun housing.


P_01919

12. Loosen the screw and remove the trigger with spring from the gun.


P_01920

13. Carefully lift the switch out of the gun housing using a screw driver.


P_01921

14. Assembly of the new switch.
    Attach the mounting tool to the switch.
    The mounting tool is optionally available (Order No. 2334252)


P_01922

15. Insert the switch in the gun housing using the mounting tool.
16. Remove the mounting tool from the switch.

P_01923

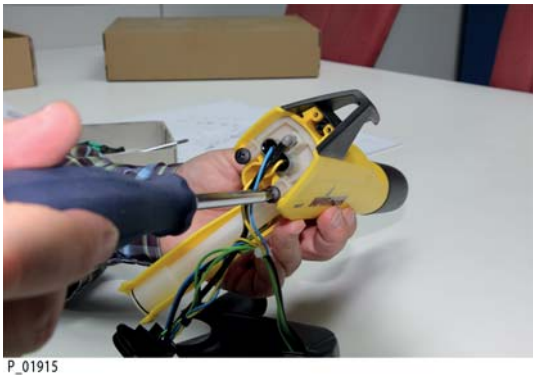
17. Place the trigger with spring on the switch.


P_01919

18. Connect the cable for the switch.
    (Tightening torque 20±5 Ncm)
    The trigger is fixed on the gun housing with the screw.


P_01917

19. Coat the O-ring on the cascade plug lightly with Vaseline.
20. Plug the cascade plug into the gun housing.
    Note:
    Do not wipe the O-ring in the lower area while inserting the cascade plug.


P_01915

21. Fasten the cascade plug on the gun housing with screws (tightening torque 40±5 Ncm).

P_01914

22. Reattach the handle to the gun housing.
    Bundle the cable with cable ties before assembly of handle and housing.
    In doing so, make sure that the entire handle is flush with the gun housing.


P_01911

23. Fasten the handle to the gun housing by means of the screws (tightening torque 90±5 Ncm).

P_01909

24. Carefully plug the gun cable into the gun housing.


P_01908

25. Fasten the gun cable to the gun housing with a screw (tightening torque 30±5 Ncm).


P_01907

26. Screw in the hose fitting for the atomizing air (tightening torque 40±5 Ncm).


P_01906

27. Insert the hose take-up into the gun housing.
28. Attach atomizing air hose.
29. Mount the nozzle system.

6.8 REPLACING THE FILTER ELEMENT

6.8.1 REPLACING THE FILTER ELEMENT AT THE NOZZLE

1. Loosen the union nut on the nozzle system and pull the nozzle system out of the gun housing.
2. Screw the M2.5 screw or the tapping screw Ø 2.5 mm from the front into the opening of the filter element and pull the filter element forward and out of the gun housing.
3. Insert a new filter element from the front until it is flush with the gun housing.
4. Insert nozzle and screw on union nut.

6.8.2 REPLACING THE FILTER ELEMENT AT THE CASCADE

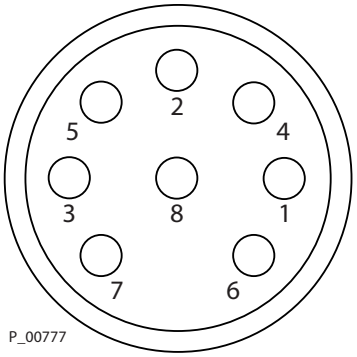
1. Follow the procedure steps 1-12 as described in chapter 6.6 "Replacing the Cascade"
2. Push the filter element out in the direction of the nozzle by using a pin with a length of at least 350 mm (Ø < 6 mm).
3. Insert a new filter element from the front until it is flush with the gun housing.
4. Follow the procedure steps 13-24 as described in chapter 6.6 "Replacing the Cascade".

6.9 CHECKING GROUNDING

6.9.1 CHECKING THE GROUND MONITORING BETWEEN PIN 3 AND PIN 8

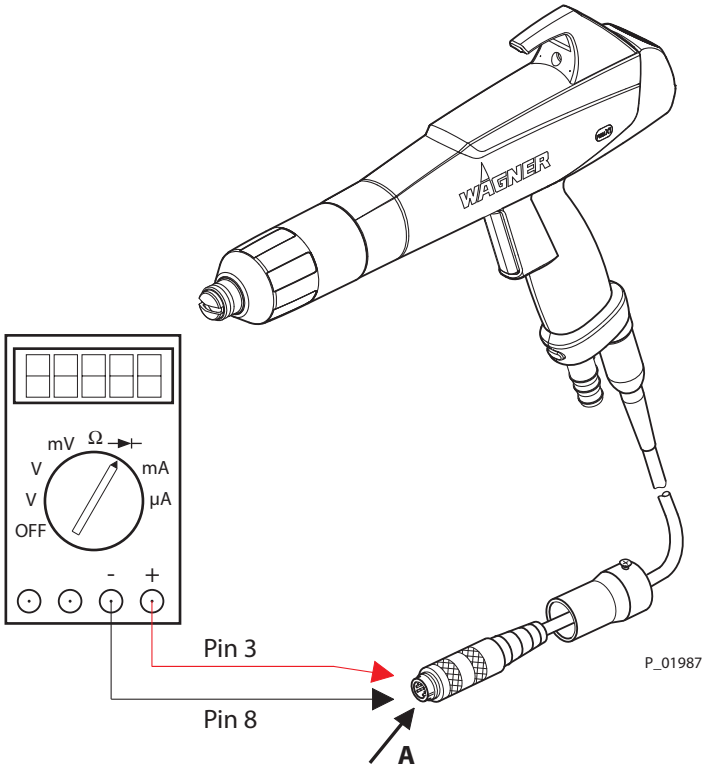
View A

(Plug assignment)



8 = Grounding cable

3 = Grounding guard circuit



Measuring device with diode measuring range.

The required testing equipment is listed in Chapter 6.3 "Tools and aids".

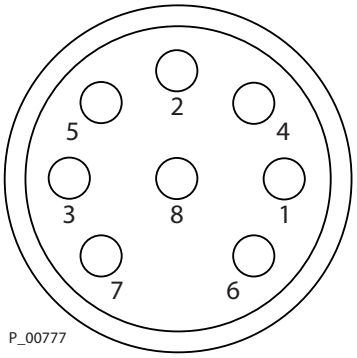
Check the contact resistance with the measuring device with diode measuring range.
The display must indicate approx. 1.1 V.

	Measuring points:
● Check the grounding cable:	Pin 8 in the cable plug
● Check the grounding guard circuit:	Pin 3 in the cable plug

6.9.2 CHECKING LED BETWEEN PIN 3 AND PIN 8

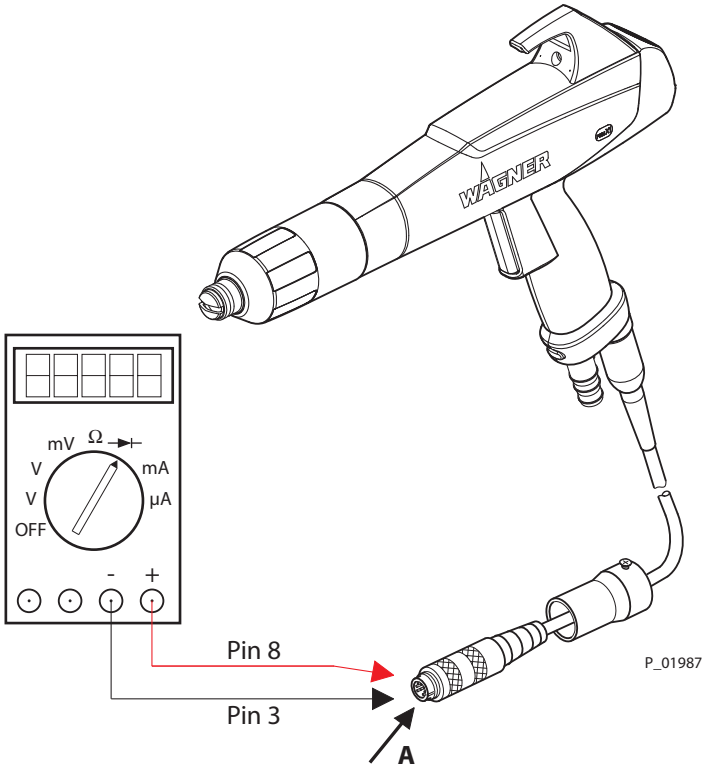
View A

(Plug assignment)



8 = Grounding cable

3 = Grounding guard circuit



Measuring device with diode measuring range.

The required testing equipment is listed in Chapter 6.3 "Tools and aids".

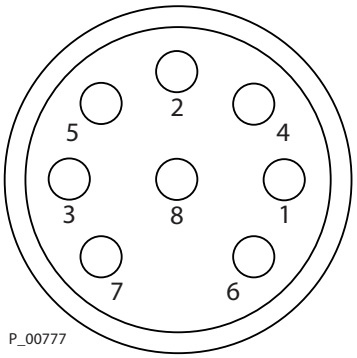
Check the contact resistance with the measuring device with diode measuring range.
The LED on the rear of the gun lights up.

	Measuring points:
● Check the grounding cable:	Pin 8 in the cable plug
● Check the grounding guard circuit:	Pin 3 in the cable plug

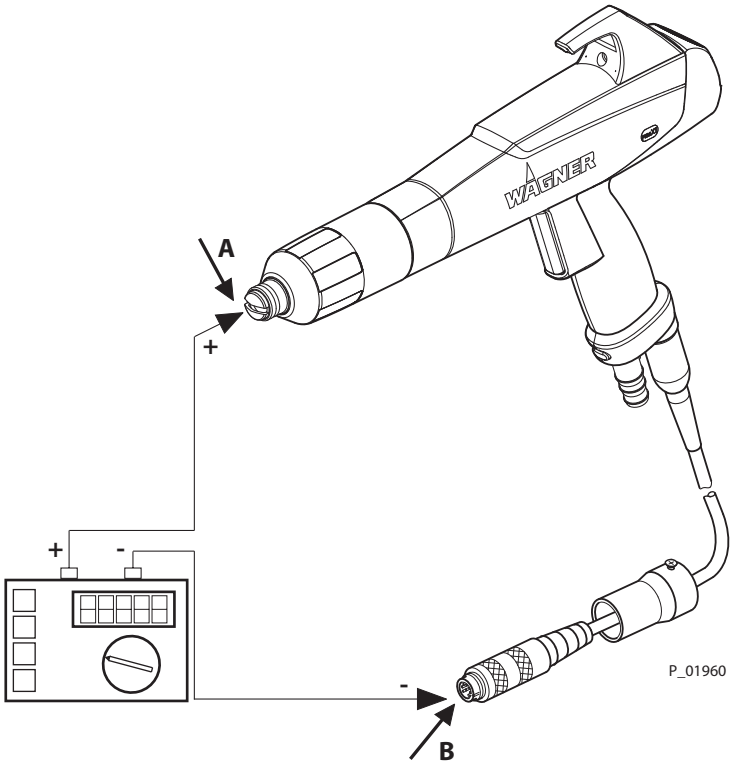
6.10 FINAL INSPECTION WITH NOZZLE SYSTEM MOUNTED

6.10.1 CHECKING CONTACT RESISTANCE

View B
(Plug assignment)



6 = Coil cascade
7 = Coil cascade



Insulation measuring device
Display range: R < 300 megohms

Note:

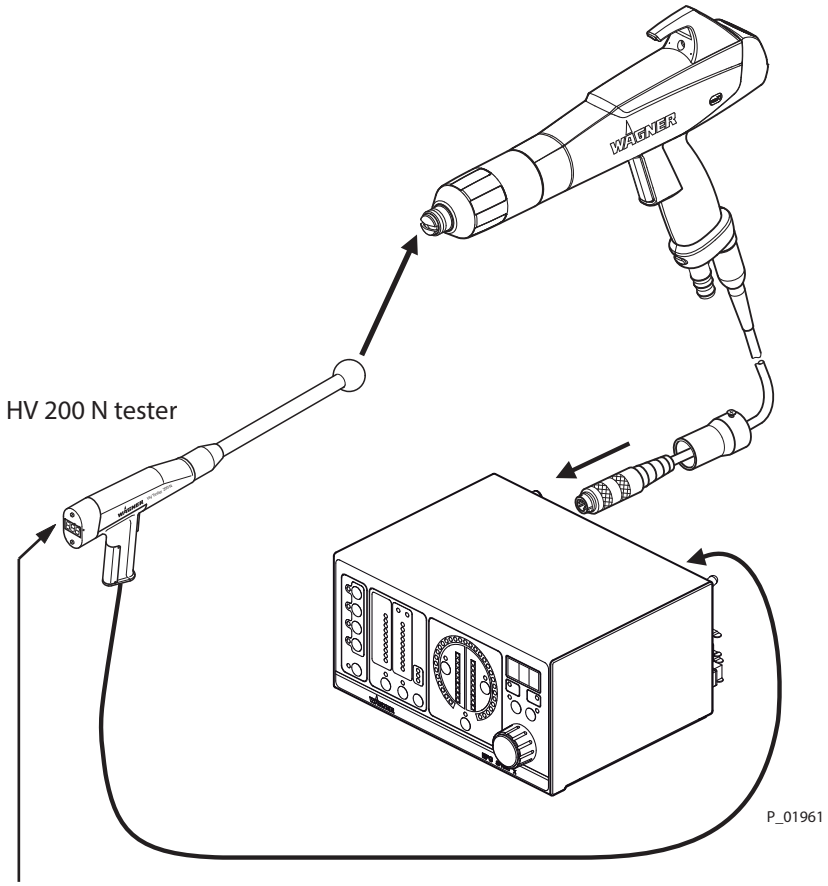
Testing total resistance requires a special measuring device, see Chapter 6.3 "Tools and Aids".

Procedure:

1. Attach the nozzle system and tighten the union nut.
2. Measure the total resistance.

   The resistance between electrode A and pin 6 or 7 of the cable plug should be approx. 250 ± 50 MΩ at a measuring voltage of 1 kV.

6.10.2 CHECKING HIGH VOLTAGE



High-voltage display

ground to the grounding screw of the control unit

The required testing equipment is listed in Chapter 6.3 "Tools and aids".

Procedure:

1. Plug the gun cable's cable plug on the rear side of the control unit, pick up the spray gun, switch on the control unit, set the high voltage to the maximum and actuate the trigger.
2. Check the spray gun with the HV 200 N high-voltage tester:

   The high voltage should range between approx. 90-100 kV (depending on the surroundings).

7 REPAIRS ON THE PEM-X 1 CG CUP GUN

7.1 PERSONNEL QUALIFICATIONS

Only specialist staff trained by WAGNER or WAGNER staff may carry out maintenance or repair work.

The following hazards may arise during repair work:

- Health hazard from inhaling powder lacquer
- Use of unsuitable tools and aids

Once the repair work is complete, the device must be checked by a qualified person to ensure a reliable condition.

7.2 SAFETY INSTRUCTIONS

⚠ DANGER

Explosive powder/air mixes!
Danger to life and equipment damage.

→ Before starting cleaning or other manual work, the high voltage must be shut down and locked to prevent it from being switched back on!
→ The spray gun must be separated from the high-voltage supply before any cleaning work is started!
→ Use only electrically conductive tanks for cleaning liquids! Ground the tank!
→ Preference should be given to non-flammable cleaning fluids.
→ Flammable cleaning liquids may only be used if, after switching off the high voltage, all high-voltage conducting parts are discharged to a discharge energy of less than 0.24 mJ before they can be accessed.
Most flammable solvents have an ignition energy of around 0.24 mJ or 60 nC.
→ The cleaning agent's flash point must be at least 15 K above the ambient temperature.
→ Only mobile industrial vacuum cleaners of design 1 (see EN 60335-2) may be used to remove dust deposits.

DANGER

Incorrect maintenance/repair!
Danger to life and equipment damage.

→ Repair or replacement of devices or parts of devices are only allowed to be performed outside the hazard area by qualified personnel.

DANGER

Incorrect maintenance/repair!
Risk of injury and damage to the device.

→ Repairs and part replacement may only be carried out by specially trained staff or a WAGNER service center.
→ Before all work on the device and in the event of work interruptions:
- Switch off the energy/compressed air supply.
- Relieve spray gun and device pressure.
- Secure the spray gun against actuation.
→ Observe the operating and service manual for all work.

WARNING

Incorrect maintenance!
Risk of injury and damage to the device.

→ If contact with powder products or cleaning agents causes skin irritation, appropriate precautionary measures must be taken, e.g., wearing protective clothing.
→ The footwear worn by operating staff must comply with EN ISO 20344. The measured insulation resistance must not exceed 100 megohms.
→ The protective clothing, including gloves, must comply with EN ISO 1149-5. The measured insulation resistance must not exceed 100 megohms.

7.3 REQUIRED TOOLS AND AIDS

In order to repair the powder cup gun, the following tools are needed:

●	Open-end wrench, SW 7
●	Allen wrench, SW 2.5
●	Wrench Torx® 8
●	Wrench Torx® 10
●	Wrench Torx® 20
●	Screwdriver 0.5x3.5
●	Size 2 recessed head screw driver
●	Mounting tool for switch (Order No. 2334252, optionally available)
●	Side cutters
●	EPG Sprint X control unit (Order No. 2324731)
●	High-voltage tester HV 200 N (Order No. 259010)
●	Insulation measuring device METRISO 1000D Metrawatt GmbH
●	Multimeter Fluke 87

Brand notice:

The brands specified in this document are property of the respective owners. Torx, for example, is a registered brand of Henkel.

P_00772

P_01877

7.4 REPLACING THE GUN CABLE


P_01924

Procedure:

1. Remove the powder cup from the gun.
2. Disconnect feed air hose, atomizing air hose and dosing air hose from the spray gun.
3. Unscrew the connections for the feed air, atomizing air and dosing air (size 7 open-end wrench).


P_01925

4. Loosen the screw with a size 20 Torx® wrench and unscrew it.


P_01926

5. Carefully pull the gun cable out of the gun housing.
6. Carefully insert the new gun cable in the gun housing.


P_01925

7. Fasten the gun cable to the gun housing with a screw (tightening torque 30±5 Ncm).


P_01924

8. Screw in the connections for feed air, atomizing air and dosing air (tightening torque 40±5 Ncm).
9. Attach feed air hose, atomizing air hose and dosing air hose.
10 Attach the powder cup.

7.5 REPLACING THE POWDER TUBE


P_01924

Procedure:

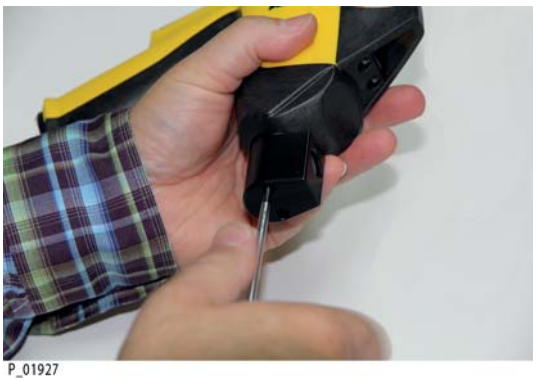
1. Remove the powder cup from the gun.
2. Disconnect feed air hose, atomizing air hose and dosing air hose from the spray gun.
3. Unscrew the connections for the feed air, atomizing air and dosing air (size 7 open-end wrench).


P_01925

4. Loosen the screw with a Torx® wrench and unscrew it.


P_01926

5. Carefully pull the gun cable out of the gun housing.


P_01927

6. Unscrew and remove the screws on the connecting part, then remove the connecting part (size 2.5 Allen wrench).


P_01928

7. Pull the collector nozzle out of the gun housing.

P_01929

8. Unscrew the connecting tube from the gun housing.


P_01930

9. Unscrew the screws on the gun hook with a size 10 Torx® wrench.


P_01931

10. Carefully remove the handle from the gun housing.


P_01932

11. Pull the powder tube out of the gun housing.
12. Insert a new powder tube into the gun housing.

P_01914

13. Reattach the handle to the gun housing.
    In doing so, make sure that the entire handle is flush with the gun housing.


P_01930

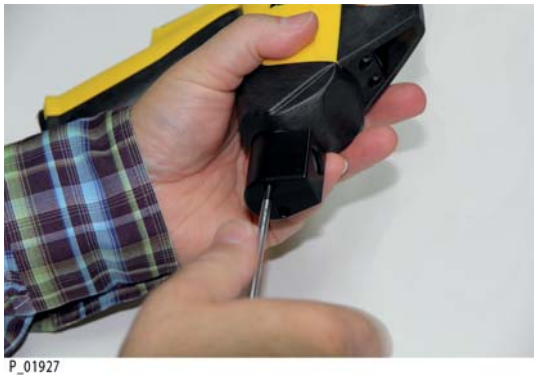
14. Fasten the handle to the gun housing by means of the screws (tightening torque 90±5 Ncm).

P_01929

15. Screw the connecting tube into the gun housing.


P_01928

16. Insert the collector nozzle in the gun housing.


P_01927

17. Attach connecting part to gun housing and fasten with screws.


P_01926

18. Carefully plug the gun cable into the gun housing.


P_01925

19. Fasten the gun cable to the gun housing with a screw (tightening torque 30±5 Ncm).


P_01924

20. Screw in the connections for feed air, atomizing air and dosing air (tightening torque 40±5 Ncm).
21. Attach feed air hose, atomizing air hose and dosing air hose.
22. Insert powder cup in connecting part.

7.6 REPLACING THE CASCADE


P_01924

Procedure:

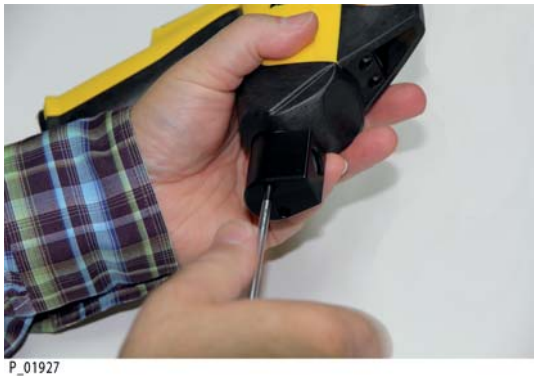
1. Remove the powder cup from the gun.
2. Disconnect feed air hose, atomizing air hose and dosing air hose from the spray gun.
3. Unscrew the connections for the feed air, atomizing air and dosing air (size 7 open-end wrench).


P_01925

4. Loosen the screw with a size 20 Torx® wrench and unscrew it.


P_01926

5. Carefully pull the gun cable out of the gun housing.


P_01927

6. Unscrew and remove the screws on the connecting part, then remove the connecting part (size 2.5 Allen wrench).


P_01928

7. Pull the collector nozzle out of the gun housing.


P_01929

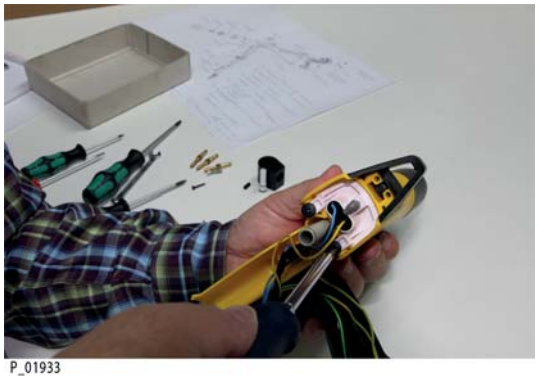
8. Unscrew the connecting tube from the gun housing.


P_01930

9. Unscrew the screws on the gun hook with a size 10 Torx® wrench.


P_01931

10. Carefully remove the handle from the gun housing.


P_01933

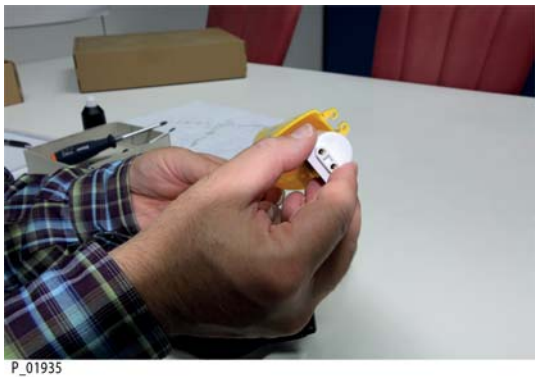
11. Unscrew the screws on the cascade plug.


P_01934

12. Carefully pry the cascade plug out of the gun housing using a screw driver.


P_01917

13. Remove the cascade plug from the gun housing.


P_01935

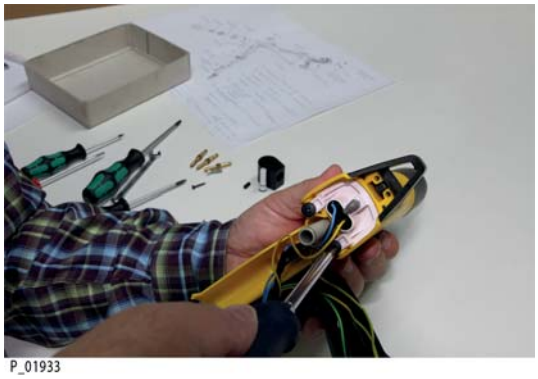
14. Pull the cascade out of the gun housing.
15. Insert a new cascade in the gun housing.


P_01917

16. Coat the O-ring on the cascade plug lightly with Vaseline.
17. Plug the cascade plug into the gun housing.

    Note:

    Do not wipe the O-ring in the lower area while inserting the cascade plug.


P_01933

18. Fasten the cascade plug on the spray gun housing with screws (tightening torque 40±5 Ncm).


P_01914

19. Reattach the handle to the gun housing.

    In doing so, make sure that the entire handle is flush with the gun housing.


P_01930

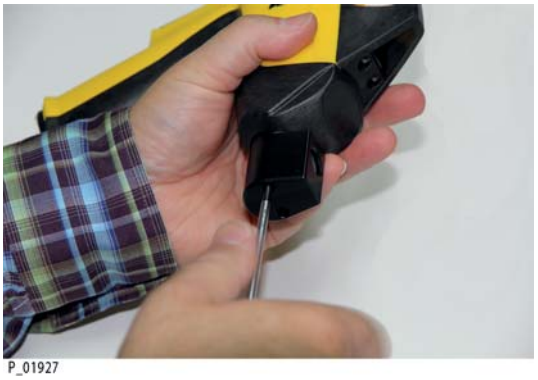
20. Fasten the handle to the gun housing by means of the screws (tightening torque 90±5 Ncm).

P_01929

21. Screw the connecting tube into the gun housing.


P_01928

22. Insert the collector nozzle in the gun housing.


P_01927

23. Attach connecting part to gun housing and fasten with screws.

P_01926

24. Carefully plug the gun cable into the gun housing.


P_01925

25. Fasten the gun cable to the gun housing with a screw (tightening torque 30±5 Ncm).


P_01924

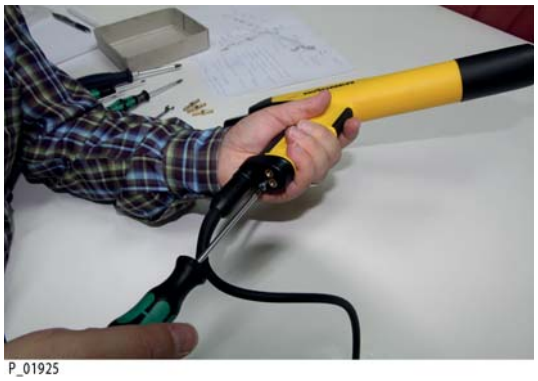
26. Screw in the connections for feed air, atomizing air and dosing air (tightening torque 40±5 Ncm).
27. Attach feed air hose, atomizing air hose and dosing air hose.
28. Insert powder cup in connecting part.

7.7 REPLACING THE CABLE ASSEMBLY WITH SWITCH


P_01924

Procedure:

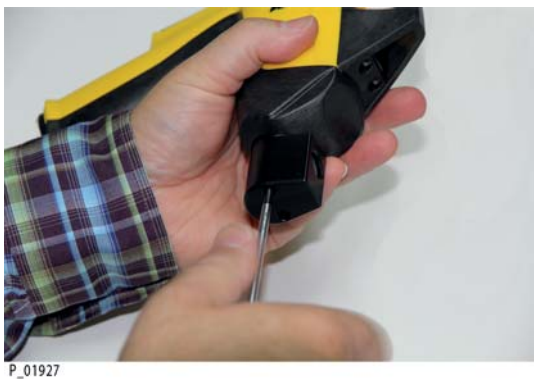
1. Remove the powder cup from the gun.
2. Disconnect feed air hose, atomizing air hose and dosing air hose from the spray gun.
3. Unscrew the connections for the feed air, atomizing air and dosing air (size 7 open-end wrench).


P_01925

4. Loosen the screw with a size 20 Torx® wrench and unscrew it.


P_01926

5. Carefully pull the gun cable out of the gun housing.


P_01927

6. Unscrew and remove the screws on the connecting part, then remove the connecting part (size 2.5 Allen wrench).


P_01928

7. Pull the collector nozzle out of the gun housing.

P_01929

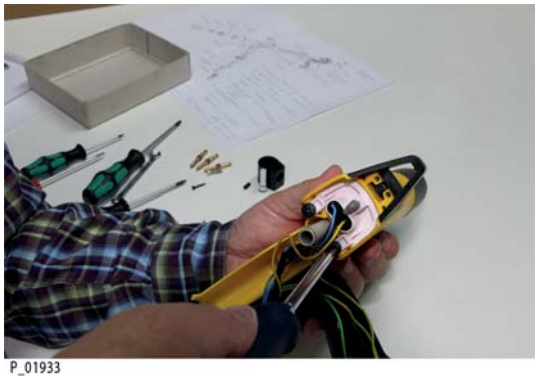
8. Unscrew the connecting tube from the gun housing.


P_01930

9. Unscrew the screws on the gun hook with a size 10 Torx® wrench.


P_01931

10. Carefully remove the handle from the gun housing.


P_01933

11. Unscrew the screws on the cascade plug.


P_01934

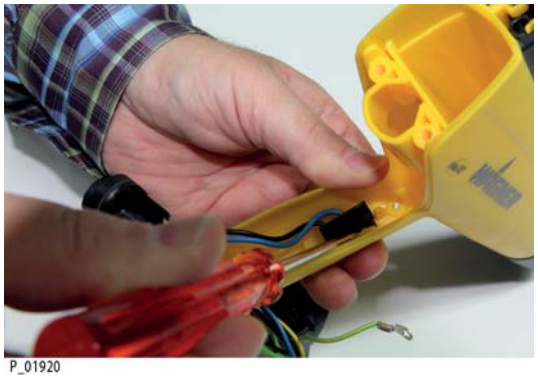
12. Carefully pry the cascade plug out of the gun housing using a screw driver.


P_01917

13. Remove the cascade plug from the gun housing.


P_01919

14. Loosen the screw and remove the trigger with spring from the gun.


P_01920

13. Carefully lift the switch out of the gun housing using a screw driver.


P_01936

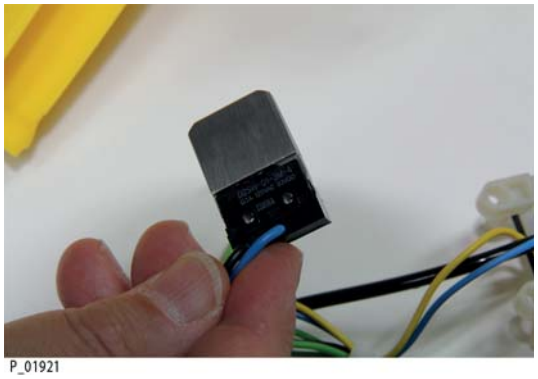
14. Loosen and unscrew the screws on the handle.


P_01937

15. Remove the air diffuser from the handle.
16. Insert the air diffuser from the new cable assembly in the handle.


P_01936

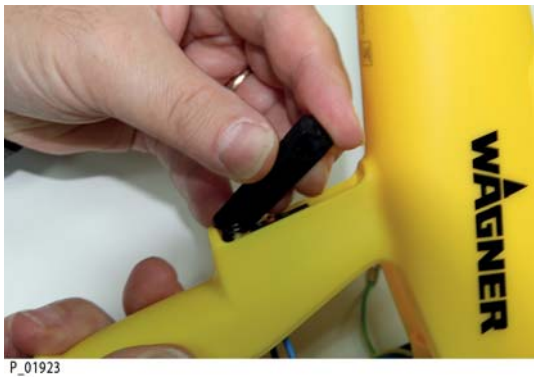
17. Screw the cable strands onto the handle (tightening torque 60±5 Ncm).


P_01921

18. Assembly of the new switch.
    Attach the mounting tool to the switch.
    The mounting tool is optionally available (Order No. 2334252)


P_01922

19. Insert the switch in the gun housing using the mounting tool.
20. Remove the mounting tool from the switch.



P_01923

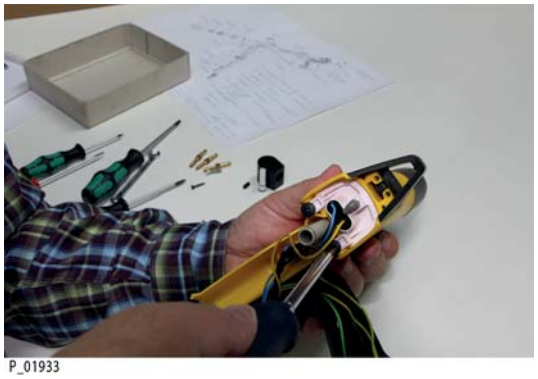
21. Place the trigger with spring on the switch.


P_01919

22. Connect the cable for the switch.
    (Tightening torque 20±5 Ncm)
    The trigger is fixed on the gun housing by means of the screw.


P_01917

23. Coat the O-ring on the cascade plug lightly with Vaseline.
24. Plug the cascade plug into the gun housing.
    Note:
    Do not wipe the O-ring in the lower area while inserting the cascade plug.


P_01933

25. Fasten the cascade plug on the spray gun housing with screws (tightening torque 40±5 Ncm).


P_01914

26. Reattach the handle to the gun housing.
    In doing so, make sure that the entire handle is flush with the gun housing.


P_01930

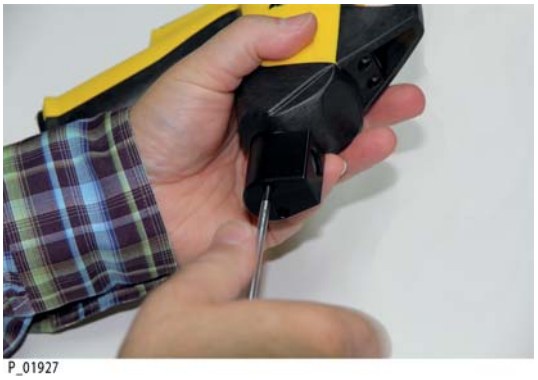
27. Fasten the handle to the gun housing by means of the screws (tightening torque 90±5 Ncm).

P_01929

28. Screw the connecting tube into the gun housing.


P_01928

29. Insert the collector nozzle in the gun housing.


P_01927

30. Fasten connecting part to gun housing and secure with screws (tightening torque 40±10 Ncm).


P_01926

31. Carefully plug the gun cable into the gun housing.


P_01925

32. Fasten the gun cable to the gun housing with a screw (tightening torque 30±5 Ncm).


P_01924

33. Screw in the connections for feed air, atomizing air and dosing air (tightening torque 40±5 Ncm).
34. Attach feed air hose, atomizing air hose and dosing air hose.
35. Insert powder cup in connecting part.

7.8 REPLACING THE FILTER ELEMENT

7.8.1 REPLACING THE FILTER ELEMENT AT THE NOZZLE

1. Remove union nut and nozzle from the gun body.
2. Screw the M2.5 screw or the tapping screw Ø 2.5 mm from the front into the opening of the filter element and pull the filter element forward and out of the gun housing.
3. Insert a new filter element from the front until it is flush with the gun housing.
4. Insert nozzle and screw on union nut.

7.8.2 REPLACING THE FILTER ELEMENT AT THE CASCADE

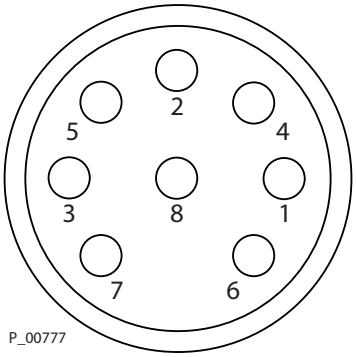
1. Follow the procedure steps 1-14 as described in chapter 7.6 "Replacing the Cascade"
2. Push the filter element out in the direction of the nozzle by using a pin with a length of at least 350 mm (Ø < 6 mm).
3. Insert a new filter element from the front until it is flush with the gun housing.
4. Follow the procedure steps 15-28 as described in chapter 7.6 "Replacing the Cascade"

7.9 CHECKING GROUNDING

7.9.1 CHECKING GROUNDING BETWEEN PIN 3 AND PIN 8

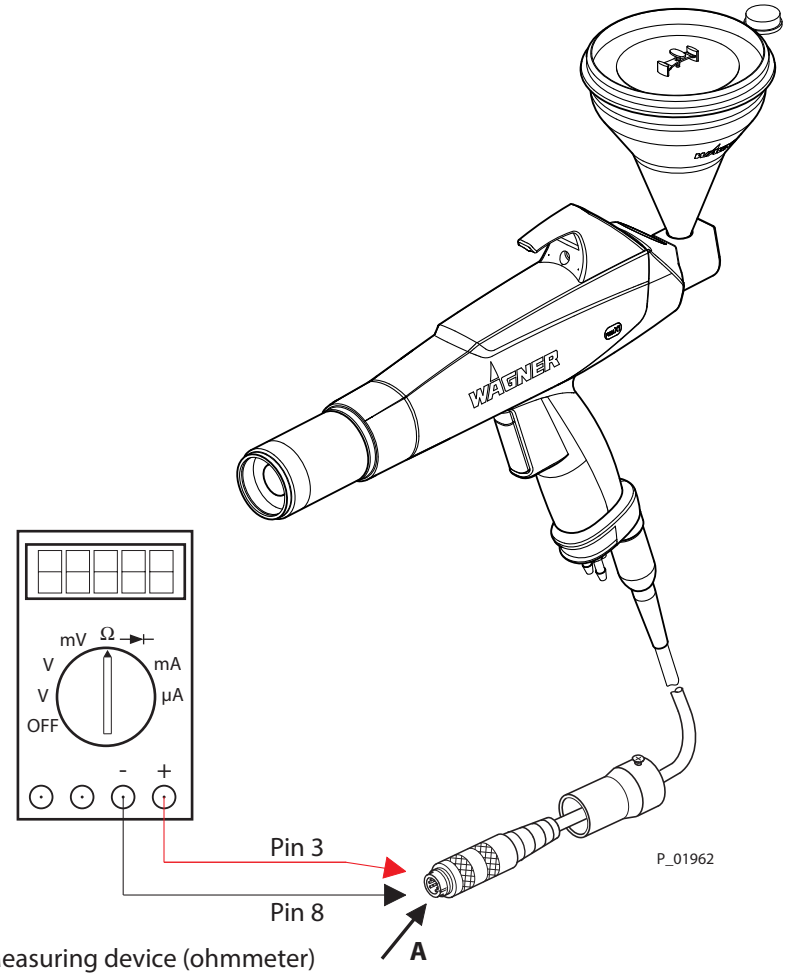
View A

(Plug assignment)



8 = Grounding cable

3 = Grounding guard circuit



Measuring device (ohmmeter)

The required testing equipment is listed in Chapter 7.3 "Tools and aids".

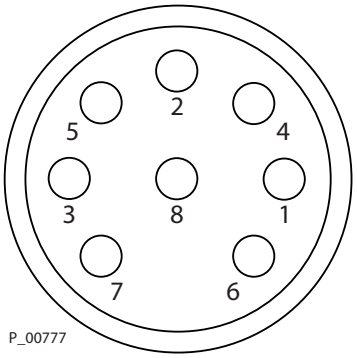
Check the contact resistance using an ohmmeter:
The display must indicate < 30 Ω.

	Measuring points:
● Check the grounding cable:	Pin 8 in the cable plug
● Check the grounding guard circuit:	Pin 3 in the cable plug

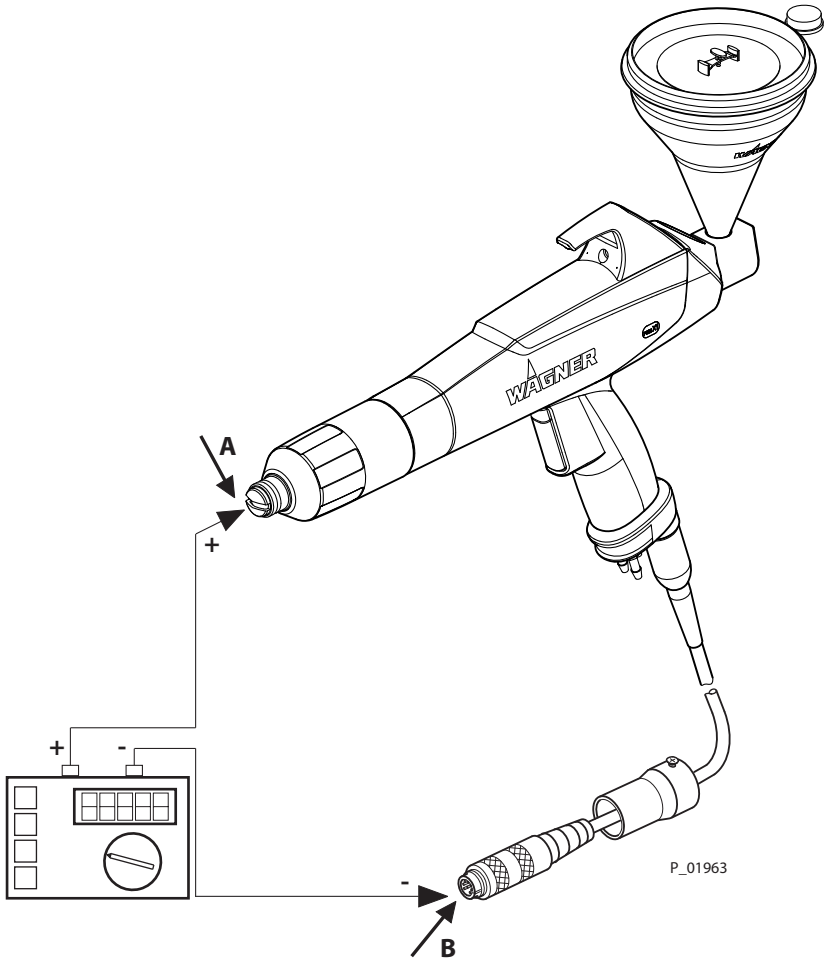
7.10 FINAL INSPECTION WITH NOZZLE SYSTEM MOUNTED

7.10.1 CHECKING CONTACT RESISTANCE

View B
(Plug assignment)



6 = Coil cascade
7 = Coil cascade



Insulation measuring device
Display range: R < 300 megohms

Note:

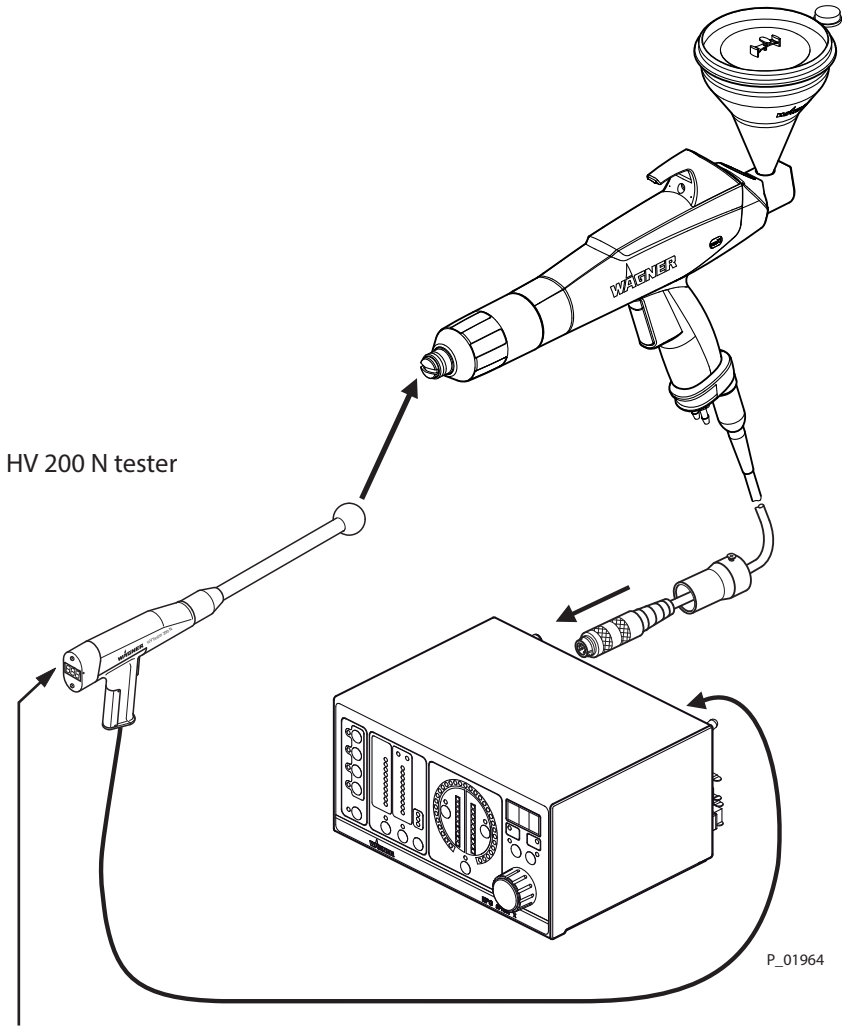
Testing total resistance requires a special measuring device, see Chapter 7.3 "Tools and Aids".

Procedure:

1. Attach the nozzle system and tighten the union nut.
2. Measure the total resistance.

   The resistance between electrode A and pin 6 or 7 of the cable plug should be approx. 250 ± 50 MΩ at a measuring voltage of 1 kV.

7.10.2 CHECKING HIGH VOLTAGE



High-voltage display

ground to the grounding screw of the control unit

The required testing equipment is listed in Chapter 7.3 "Tools and aids".

Procedure:

1. Plug the gun cable's cable plug on the rear side of the control unit, pick up the spray gun, switch on the control unit, set the high voltage to the maximum and actuate the trigger.
2. Check the spray gun with the HV 200 N high-voltage tester:

   The high voltage should range between approx. 90-100 kV (depending on the surroundings).

8 INSPECTIONS ACCORDING TO DIN EN 50177: 2010

If the system is used for electrostatic coating with flammable coating powders, testing should be undertaken in accordance with DIN EN 50177: 2010-04 as per Table 3 and Table 4.

8.1 OVERVIEW OF INSPECTIONS

Section	Type of inspection	Requirements	Inspection by	Type of inspection	Inspection interval
1	Checking the effectiveness of technical ventilation	Checking the effectiveness of technical ventilation	TP/SP	ME Measurements of air flow speed / air quantities Check the differential pressure indicator.	continuously
2	Link between technical ventilation equipment and high voltage, compressed air and coating material supply	The technical ventilation should be interlocked such that the powder feed and high voltage cannot be switched on, while the technical ventilation is not working effectively.	SP	FT Test whether the system is safely stopped and the product supply, supply air and high voltage are switched off when the ventilation is shut down.	annually
3	Effectiveness of grounding	All the system's conductive elements, such as floors, walls, ceilings, protective grating, transport equipment, work pieces, powder tanks, machines or construction parts etc. in the spray area, with the exception of parts which carry high voltage during operation, must be connected to the grounding system. Parts of the booth must be grounded in accordance with EN 12215.	SP	VI/ME/CM Visual check of ground connections, perform function test on grounding switch, measurement of grounding resistors.	weekly

Legend:
MF = Manufacturer
ER = Employer
SP = Skilled person
FPO = Fire prevention officer
ELT = Electrician
TP = Trained person

FT = Function test
ME = Measurement
OC = Organization check
VI = Visual inspection
CM = Constant monitoring
TT = Technical testing

Section	Type of inspection	Requirements	Inspection by	Type of inspection	Inspection interval
4	Measures to take if conductive components are insufficiently grounded	If sufficient grounding of conductive parts cannot be ensured, their discharge energy must not exceed the permissible value.	SP	ME/CM Measurement of discharge energy.	weekly
5	Ground leaking resistance from the work piece attachment point	The resistance to ground of every work piece's locating point must not exceed 1 megohm (measurement voltage must be 1000 V). The form of construction of the work piece mount must guarantee that the work pieces remain grounded during coating.	SP	ME/CM Measure resistance to ground (work piece receiver - ground potential) max. 1 megohm @ 1000 V.	weekly

Legend:
MF = Manufacturer
ER = Employer
SP = Skilled person
FPO = Fire prevention officer
ELT = Electrician
TP = Trained person
FT = Function test
ME = Measurement
OC = Organization check
VI = Visual inspection
CM = Constant monitoring
TT = Technical testing

Section	Type of inspection	Requirements	Inspection by	Type of inspection	Inspection interval
6	Measures to take if the work pieces are insufficiently grounded	If sufficient work piece grounding in accordance with section 6 cannot be ensured, appropriate equipment, e.g., ionizers, must be used to discharge electric charges on the work piece. Such equipment must not exceed the permitted discharge energy of the spray systems with which it is used. In terms of permitted discharge energy, this equipment must be put through the same inspections as the powder spray systems used with it. The discharge equipment must be interlocked with the spray system such that the high voltage is switched off and that coating cannot take place if the discharge equipment malfunctions.	SP	ME/FU/SÜ Measurement of discharge energy, check the monitoring equipment's test function by triggering it.	weekly
7	Effectiveness of the manually or automatically actuated fire extinguishing systems (room protection system)	Effectiveness of the manually or automatically actuated fire extinguishing systems (room protection system).	HE/BSB	FT Trigger fire extinguishing system, observe manufacturer's requirements.	6 months

Legend:
MF = Manufacturer
ER = Employer
SP = Skilled person
FPO = Fire prevention officer
ELT = Electrician
TP = Trained person

FT = Function test
ME = Measurement
OC = Organization check
VI = Visual inspection
CM = Constant monitoring
TT = Technical testing

9 DISASSEMBLY AND DISPOSAL

9.1 DISASSEMBLY

⚠ WARNING

Incorrect disassembly!
Risk of injury and damage to the device.

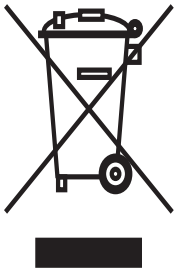
→ Before starting disassembly:
- Switch off the energy/compressed air supply.
- Ensure that all system components are grounded.
- Secure system against being switched back on without authorization.

→ Observe the operating manuals for any work.

Procedure:

1. Switch off the system.
2. Lock the compressed air supply and decompress system.
3. Disconnect the gun connection cable from control unit.
4. Disconnect the powder feed hose to the spray gun and to the powder injector.
5. Disconnect the atomizing air hose to the spray gun and to the control unit.

9.2 DISPOSAL



NOTICE

Do not dispose of used electrical equipment with household refuse!
In accordance with European Directive 2002/96/EC on the disposal of used electrical equipment and its implementation in national law, this product may not be disposed of with the household refuse, but must be recycled in an environmentally correct manner.
Wagner or one of our dealers will take back your used Wagner waste electrical or electronic equipment and will dispose of it for you in an environmentally friendly way. Please contact one of our service points, one of our representatives or us directly to arrange this.

10 TROUBLE SHOOTING AND RECTIFICATION

DANGER

Incorrect maintenance/repair!
Risk of injury and damage to the device.

→ Repairs and part replacement may only be carried out by specially trained staff or a WAGNER service center.
→ Before all work on the device and in the event of work interruptions:
- Switch off the energy/compressed air supply.
- Relieve spray gun and device pressure.
- Secure the spray gun against actuation.
→ Observe the operating and service manual for all work.

DANGER

Incorrect maintenance/repair!
Danger to life and equipment damage.

→ WAGNER devices, protective systems and safety, monitoring and control equipment may only be maintained/repaired as defined in Directive 94/9/EC (ATEX) by trained WAGNER service personnel or capable persons in accordance with TRBS 1203! Note national regulations!
→ Repair or replacement of devices or parts of devices may only be performed outside the hazard area!

Malfunction	Cause	Remedy
No electrostatics (e.g., no wrap around or powder adhesion)	• Fault in the high-voltage generator • Electrical cable from spray gun to control unit faulty • Cascade in spray gun faulty	• Contact a WAGNER service center • Contact a WAGNER service center • Contact a WAGNER service center
Poor powder wrap-around Back-spray	• Insufficient or no grounding	• See Chapter 6.4 "Grounding"
Powder outlet uneven or inadequate	• Contamination • Powder sintering • Feed device contaminated • Feed air / dosing air ratio incorrect • Wear on powder injector nozzle	• Blow through parts carrying powder • Clean parts carrying powder • See operating manuals for the related devices connected • Adjust at control module resp. control unit • Replace worn parts on powder injector [1])
Spray pattern is uneven	• Parts of nozzle system worn	• Replace worn parts
Cracks in the gun housing	• Improper handling of the powder spray gun	• Gun housing must be replaced • Contact a WAGNER service center

1.) You will find the wear parts and spare parts in the powder injector operating manual.

11 DECLARATION OF WARRANTY AND CONFORMITY

11.1 IMPORTANT NOTES REGARDING PRODUCT LIABILITY

As a result of an EC regulation effective from January 1, 1990, the manufacturer shall only be liable for his product if all parts originate from him or are approved by him, and if the devices are properly mounted, operated and maintained.
The manufacturer will not be held liable or will only be held partially liable if third-party accessories or spare parts have been used.
With genuine WAGNER accessories and spare parts, you have the guarantee that all safety regulations are complied with.

11.2 WARRANTY CLAIM

Full warranty is provided for this device:
We will at our discretion repair or replace free of charge all parts which within 24 months in single-shift, 12 months in 2-shift or 6 months in 3-shift operation from date of receipt by the purchaser are found to be wholly or substantially unusable due to causes prior to the sale, in particular faulty design, defective materials or poor workmanship.
The type of warranty provided is such that the device or individual components of the device are either replaced or repaired as we see fit. The resulting costs, in particular shipping charges, road tolls, labour and material costs will be borne by us except where these costs are increased due to the subsequent shipment of the device to a location other than the address of the purchaser.
We do not provide warranty for damage that has been caused or contributed to for the following reasons:
Unsuitable or improper use, faulty assembly or commissioning by the purchaser or a third party, normal wear, negligent handling, defective maintenance, unsuitable coating products, substitute products and the influence of chemical, electrochemical or electrical agents, except when the damage is attributable to us.
Components that have not been manufactured by WAGNER are subject to the original warranty of the manufacturer.
Replacement of a component does not extend the period of warranty of the device.
The device should be inspected immediately upon receipt. To avoid losing the warranty, we or the supplier company are to be informed in writing about obvious faults within 14 days upon receipt of the device.
We reserve the right to have the warranty compliance met by a contracting company.
The services provided by this warranty are dependent on evidence being provided in the form of an invoice or delivery note. If the examination discovers that no warranty claim exists, the costs of repairs are charged to the purchaser.
It is clearly stipulated that this warranty claim does not represent any constraint on statutory regulations or regulations agreed to contractually in our general terms and conditions.

Wagner International AG

11.3 PEM-X1 DECLARATION OF CONFORMITY

Herewith we declare that the supplied version of

- PEM-X1 manual gun, order No. 2322587

complies with the following provisions applying to it:

- 94/9/EC (ATEX Directive)
- 2006/42/EC (Machine Directive)
- 2004/108/EC (EMC Directive)
- 2002/95/EG (RoHs Directive)
- 2002/96/EC (WEEE Directive)

Applied standards, in particular:

- prDIN EN 50050-2: 2011
- DIN EN 50050: 2007
- DIN EN 1127-1: 2011
- DIN EN 60079-0: 2010
- DIN EN 60079-31: 2010
- DIN EN 60079-7: 2007
- DIN EN 1953: 2010
- DIN EN 60204-1: 2007
- DIN EN ISO 80079-34: 2012
- DIN EN 14462: 2010
- DIN EN 60529: 2000
- DIN EN ISO 12100: 2011
- DIN EN 61000-6-2: 2011
- DIN EN 6100-6-4: 2011
- DIN EN 62061: 2010
- DIN EN ISO 13849-1: 2008
- DIN EN 50177: 2010

Applied national technical standards and specifications, in particular:

- BGI 764

Identification:

CE 0102 Ex II 2D 2mJ
PTB 12 ATEX 5002
EN 50050-2:2012

EC Certificate of Conformity
The CE certificate of conformity is enclosed with this product. If needed, further copies can be ordered through your WAGNER dealer by specifying the product name and serial number.

Order number:

PEM-X1 manual gun 2326024

11.4 PEM-X1 CG DECLARATION OF CONFORMITY

Herewith we declare that the supplied version of

- PEM-X1 CG manual gun, order no. 2322588

complies with the following provisions applying to it:

- 94/9/EC (ATEX Directive)
- 2006/42/EC (Machine Directive)
- 2004/108/EC (EMC Directive)
- 2002/95/EG (RoHs Directive)
- 2002/96/EC (WEEE Directive)

Applied standards, in particular:

- prDIN EN 50050-2: 2011
- DIN EN 50050: 2007
- DIN EN 1127-1: 2011
- DIN EN 60079-0: 2010
- DIN EN 60079-31: 2010
- DIN EN 60079-7: 2007
- DIN EN 1953: 2010
- DIN EN 60204-1: 2007
- DIN EN ISO 80079-34: 2012
- DIN EN 14462: 2010
- DIN EN 60529: 2000
- DIN EN ISO 12100: 2011
- DIN EN 61000-6-2: 2011
- DIN EN 61000-6-4: 2011
- DIN EN 62061: 2010
- DIN EN ISO 13849-1: 2008
- DIN EN 50177: 2010

Applied national technical standards and specifications, in particular:

- BGI 764

Identification:

CE 0102 Ex II 2D 2mJ
PTB 12 ATEX 5002
EN 50050-2:2012

EC Certificate of Conformity
The CE certificate of conformity is enclosed with this product. If needed, further copies can be ordered through your WAGNER dealer by specifying the product name and serial number.

Order number:

PEM-X1 CG manual gun 2326024

10.5 EC TYPE EXAMINATION CERTIFICATE

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

PTB

EG-Baumusterprüfbescheinigung

(1)

(2) Geräte und Schutzsysteme zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen - **Richtlinie 94/9/EG**

(3) EG-Baumusterprüfbescheinigungsnummer

PTB 12 ATEX 5002

(4) Gerät: Handgeführte elektrostatische Pulverbeschichtungspistole PEM-X1 und handgeführte elektrostatische Pulverbecherpistole PEM-X1 CG mit Zubehör.

(5) Hersteller: J. Wagner AG

(6) Anschrift: Industriestrasse 22, 9450 Altstätten, Schweiz

(7) Die Bauart dieses Gerätes sowie die verschiedenen zulässigen Ausführungen sind in der Anlage und den darin aufgeführten Unterlagen zu dieser Baumusterprüfbescheinigung festgelegt.

(8) Die Physikalisch-Technische Bundesanstalt bescheinigt als benannte Stelle Nr. 0102 nach Artikel 9 der Richtlinie des Rates der Europäischen Gemeinschaften vom 23. März 1994 (94/9/EG) die Erfüllung der grundlegenden Sicherheits- und Gesundheitsanforderungen für die Konzeption und den Bau von Geräten und Schutzsystemen zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen gemäß Anhang II der Richtlinie.

Die Ergebnisse der Prüfung sind in dem vertraulichen Prüfbericht PTB Ex 12-51177 festgehalten.

(9) Die grundlegenden Sicherheits- und Gesundheitsanforderungen werden erfüllt durch Übereinstimmung mit

DIN EN 50050:2007, prEN 50050-2:2011, DIN EN 50177:2010

(10) Falls das Zeichen „X" hinter der Bescheinigungsnummer steht, wird auf besondere Bedingungen für die sichere Anwendung des Gerätes in der Anlage zu dieser Bescheinigung hingewiesen.

(11) Diese EG-Baumusterprüfbescheinigung bezieht sich nur auf Konzeption und Prüfung des festgelegten Gerätes gemäß Richtlinie 94/9/EG. Weitere Anforderungen dieser Richtlinie gelten für die Herstellung und das Inverkehrbringen dieses Gerätes. Diese Anforderungen werden nicht durch diese Bescheinigung abgedeckt.

(12) Die Kennzeichnung des Gerätes muss die folgenden Angaben enthalten:

II 2D 2mJ

ZSEx10100d.dotm

Zertifizierungssektor Explosionsschutz
Im Auftrag

Dr.-Ing. M. Beyer
Direktor und Professor

Braunschweig, 6. August 2012

PHYSIKALISCH-TECHNISCHE BUNDESANSTALT

Seite 1/3

10.5 FM APPROVAL

The PEM-X 1 and PEM-X1 CG powder spray guns are approved in the USA and Canada using configuration drawing no. 2309729.

CERTIFICATE OF COMPLIANCE

HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT

HAZARDOUS LOCATION ELECTRICAL EQUIPMENT PER CANADIAN REQUIREMENTS

The Sprint AF USA and Sprint 60L USA Manual Powder Spray Systems for use in Electrostatic Powder Finishing Applications using Class II Spray Materials when configured in accordance with drawing 2309729. The Sprint AF USA and Sprint 60L USA Trolleys are rated for use in Class II, Division 2, Groups E, F and G Hazardous (Classified) Locations. The PEM-X1, PEM-X1-CG, PEM-C4-HiCoat FM and PEM-C4-ERGO FM Manual Applicators, and PEA-C4-HiCoat FM and PEA-C4XL-HiCoat FM Automatic Applicators with either EPG-Sprint X, EPG-Sprint FM, EPG-S2 FM, EPG-Prima and EPG-2008 Control Units for use in Electrostatic Powder Finishing Applications using Class II Spray Materials when configured in accordance with drawing 2309729. Control Units are rated for use in Class II, Division 2 Hazardous (Classified) Locations. The EPG-Sprint X, EPG-Sprint FM Control Units have an indoor environmental rating of IP64. The PEM-C4-ERGO FM Manual Applicator, and PEA-C4-HiCoat FM and PEA-C4XL-HiCoat FM Automatic Applicators have an environmental rating of IP54.

Special conditions of use:
The source electrical connection for the Control Units are to be connected in an unclassified (ordinary) location only.

Equipment Ratings:

The applicators are rated for use in Electrostatic Powder Finishing Applications using Class II Spray Materials when configured in accordance with drawing no. 2309729. The associated control units and mobile powder systems are rated for use in Class II, Division 2, Group E, F and G Hazardous Locations. The EPG-Sprint X EPG-Sprint FM Control Units have an environmental rating of IP64. The PEM-C4-ERGO FM Manual Applicator, PEA-C4-Hicoat FM, PEA-C4XL-HiCoat FM Automatic Applicators have an environmental rating of IP54.

FM Approvals
Member of the FM Global Group

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P.O. Box 9102 Norwood, MA 02062 USA
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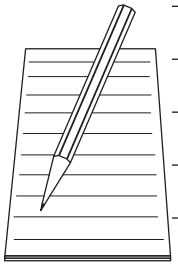

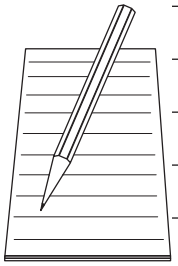

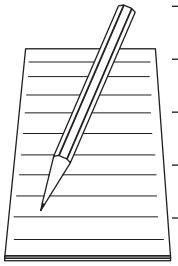

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