



INSTRUCTION MANUAL

ELECTRONIC POWER SUPPLY
STD9 - STD9A - STD9B

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TRANSLATION OF THE ORIGINAL MANUAL

IMPORTANT : Before assembly and start-up, please read and clearly understand all the documents relating to the equipment (professional use only).

THE PICTURES AND DRAWINGS ARE NOT CONTRACTUAL. WE RESERVE THE RIGHT TO MAKE CHANGES WITHOUT PRIOR NOTICE.

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INSTRUCTION MANUAL
ELECTROSTATIC POWER SUPPLY
STD 9 - STD 9 A - STD 9 B

TABLE OF CONTENTS

1. GENERAL SAFETY INSTRUCTIONS	2
2. POWER SUPPLY DESCRIPTION	4
3. OPERATING PRINCIPLE.....	4
4. SPECIFICATIONS OF THE POWER SUPPLY UNITS.....	5
5. INSTALLATION WITH STD9 & STD9A POWER SUPPLY UNITS	9
6. POWER SUPPLY OPERATION.....	11
7. TROUBLESHOOTING	11
8. STD 9 B POWER SUPPLY UNIT.....	12

PARTS IDENTIFICATION LIST : STD 9, STD 9 A, STD 9 B POWER SUPPLY (Doc. 573.351.050)
FLOW SWITCH (Doc. 573.320.050)

Dear Customer, we would like to take this opportunity to thank you for buying a **new electrostatic power supply unit**. We are confident that you have made the right choice.

We have taken every care, from original design to final manufacture, to ensure that this product gives you complete satisfaction. To obtain the best performance and reliability from this equipment, we would strongly advise you to read this instruction manual attentively before attempting to use the equipment.

1. GENERAL SAFETY INSTRUCTIONS

➡ **BEFORE CONNECTING THE STD 9 POWER SUPPLY ON THE MAIN POWER SOURCE, BE SURE IT IS COMPATIBLE WITH THE LOCAL VOLTAGE SOURCE (110 VAC/60 Hz or 220 VAC/50 Hz) – IF REQUIRED SWITCH COMMUTATOR (E).**

1 - **The non-compliance with the safety requirements and precautions stated in this manual could result in unsafe conditions.**

- 2 - The personnel involved in operating and servicing the electrostatic coating equipment must be fully aware of all safety requirements stated in this manual.
- 3 - The workshop supervisor must be certain that the personnel has perfectly understood the safety instructions and complies with them. These instructions cover the precautions required for solvent-based paint spraying and the specific precautions in connection with the use of equipment requiring high voltage.

The personnel must also be familiar with the local safety standards which can be in force in certain countries.

■ INSTALLATION

- 4 - Spraying, cleaning and servicing must be made in a ventilated area so that solvent vapours are properly drained.
- 5 - STD 9 power supply unit must be installed in a non-hazardous area. Moreover, it must be located 4 meters (13 ft) at least away from any flammable vapour emissions.
- 6 - All metallic parts located within 3 meters (10 ft) around the gun (such as pumps, drums, conveyor, etc ...) must be correctly grounded.
- 7 - Storage of paint and solvent drums near or inside the spraying area is prohibited. Keep all fluid containers properly closed in a non-hazardous area.

➡ **Use cleaning solvents with the highest flash point – If possible, higher than the ambient temperature.**

- 8 - Remove the useless parts from the spraying area and keep this area clean. Part holders and conveyor hooks must be removed and frequently cleaned.
- 9 - The floor must be electrically conductive and grounded. Maximum resistivity of the floor : 1 MΩ as per EN 50 053-7-2.
- 10 - The warning sign must be affixed in the spraying area and located where it can be easily seen and read by all operators.

■ SPRAYING

- 11 - Never point the spray gun to anyone or any part of the body.
- 12 - Never throw or drop the electrostatic manual gun. Any misuse of the spray equipment or accessories can damage them and result in serious body injury, fire or explosion.

- 13 - The parts to be painted must be properly grounded. Any incorrect electrical continuity might result in shock hazard.
- 14 - Never operate the electrostatic spray gun if air leaks are detected on the gun. Never use air hoses on which air leaks can occur.
- 15 - Be sure that tip and air cap are in position and hand tightened with the retaining ring onto the gun before turning on the power supply.
- 16 - Verify that any person entering the spray area is correctly grounded with conductive sole shoes (in accordance with EN 50 053 standard).

The operator must not wear gloves which insulate the hand from the conductive gun handle. If using gloves, check that they are conductive (in accordance with EN 50 053) or that a square has been cut-out in the glove palm.

■ SERVICING

- 17 - After any servicing or cleaning, never switch on the power supply before tip and air cap are in position and secured with the retaining ring onto the gun.
- 18 - Never immerse the gun or plastic parts of the gun in solvent.
This could seriously damage the gun and cause fire, explosion or body injury. To clean the gun use soft cloth or bristle brush with a moderate amount of non-conductive solvent, wipe the front of the gun at fluid nozzle with the gun pointed down to prevent dirty solvent from flowing back into the air passages.
- 19 - Before disconnecting the hoses, check that they are no more under pressure and that the power supply is off.
- 20 - The personnel involved in the electrostatic coating system servicing must be trained and qualified. If you face any trouble which cannot be repaired, do not try to start up the equipment. Consult immediately your local authorized KREMLIN distributor for assistance.

■ ENVIRONMENT



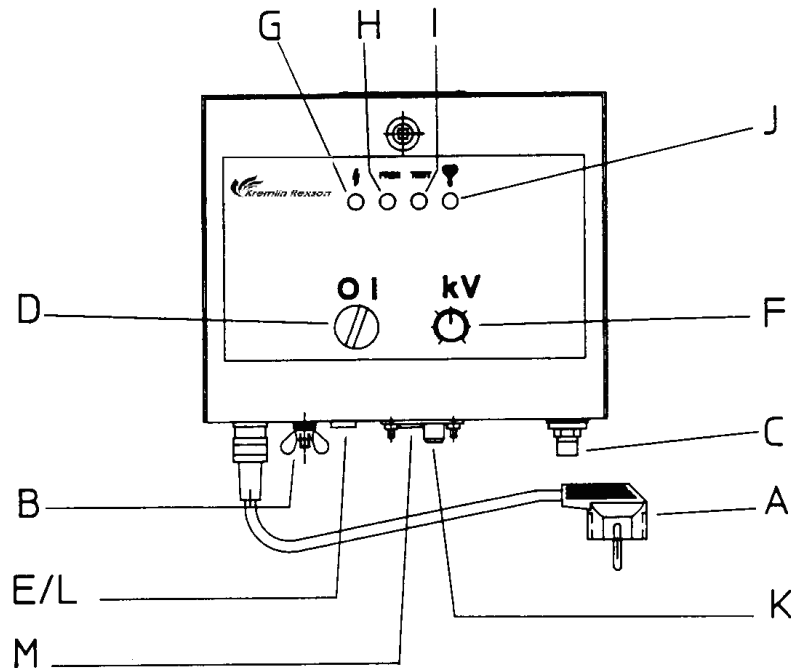
This equipment consists of a label plate with the name of the manufacturer, the equipment part number, the interesting informations to use correctly the equipment (pressure, voltage...) and the above pictogram.

The equipment is designed with and consists of high quality materials and components which can be re-used.

The 2002/96/EEC European Directive covers all equipments with a crossed-out bin pictogram. Please inform yourself about the collection systems for electric and electronic equipments.

Please act according to local rules and **do not throw the old equipments with household wastes**. A correct disposal of the old equipment will help prevent negative consequences for the environment and health.

2. POWER SUPPLY DESCRIPTION



- | | |
|---|---|
| <p>A - Power supply cable</p> <p>B - Ground connection</p> <p>C - Air supply connection (STD 9)</p> <p>D - ON-OFF switch</p> <p>E - Commutator : 115/230 V</p> <p>F - Voltage adjustment knob (potentiometer)</p> <p>G - Supply green indicator LED</p> | <p>H - Yellow indicator LED (flow switch)</p> <p>I - Green indicator LED (power supply test)</p> <p>J - Electrostatic effect - Red indicator LED</p> <p>K - Air supply connection (gun)</p> <p>L - Fuse</p> <p>M - Low voltage cable connection</p> |
|---|---|

A galvanometer (to visualize the current or voltage) and a red indicator LED (to control the electrostatic effect) equip the STD 9 A power supply.

3. OPERATING PRINCIPLE

■ STD 9 POWER SUPPLY

The STD 9 power supply is available in 3 versions :

- ◆ Model STD 9 to supply the **manual** electrostatic guns : KM*3 Ex
- ◆ Model STD 9 B to supply the **manual** electrostatic guns (**for water-based paints**) : KM*3 H2O
- ◆ Model STD 9 A to supply the **automatic** electrostatic guns : KA* Ex

The STD 9 power supply transforms the 110/220 Vac into an adjustable continuous low voltage.

An electronic regulator built into the power supply unit automatically reduces the intensity and voltage when the electrode on the spray gun is close to a grounded object (less than 100 mm or 4 inches) thereby preventing any electric discharge.

- ⇒ **The power supply unit includes a 3-pin plug and cable assembly so as guarantee a safe grounded AC input power system. Failure to ground the power supply may result in an electrical shock hazard.**

For STD 9 and STD 9 B power supply unit

The atomizing air of the electrostatic spray gun flows through the power supply – via the flow-switch – and then exhausts through the gun air cap.

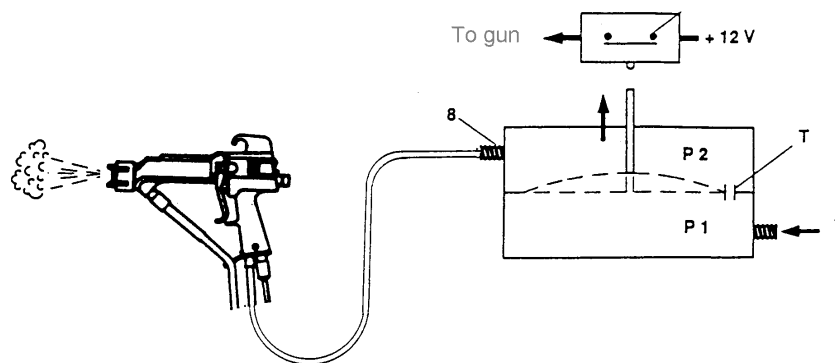
The flow switch provides low voltage to gun generator.

For the STD 9 A power supply unit

A pressure switch is incorporated into the power supply (instead of a flow-switch).

The control air pressure (minimum 2 bar / 29 psi) to this switch actuates the power supply and is independent of the fan pattern and/or atomizing air. When air pressure to the pressure switch is interrupted, the low voltage to the gun generator is de-energized through opening of the pressure switch.

■ FLOW SWITCH



7 - Air inlet : 2 bar min. (29 psi min.) - M 1/4 NPS

8 - Air outlet - to connect the hose to the gun - M 1/4 NPS

The action of pressing the trigger operates valve S which allows air to be exhausted at the front of the gun.

This air flow passes through hole T and the pressure P 2 is lowered to P 1. The diaphragm curves upwards and operates switch R, thus allowing the low voltage to be supplied to the gun.

When releasing the trigger, the air flow stops. The pressure P 1 and P 2 balances and the diaphragm goes down to turn off switch R which consequently stops the low voltage being supplied to the gun.

4. SPECIFICATIONS OF THE POWER SUPPLY UNITS

Dimensions : L x h x p (260 x 210 x 130).

Weight : 6 kg / 13.2 lbs

Material : varnished steel sheet

Protection level : IP 54.

Supplied with electric cable - length : 5 m / 16.4 ft

■ ELECTRIC FEATURES

Supply voltage : 115 V/230 V - 50/60 Hz (voltage commutator in 'E').

Protection : Time delay fuse 5 x 20 mm - 0,25 A.

Output voltage : adjustable continuous from 3 Vdc to 12 Vdc with front potentiometer knob
(STD 9 and STD 9 A)
from 3 to 8 V for the STD 9 B

Output intensity : 0.65 A (STD 9 and STD 9 A)
0.5 A (STD 9B)

Air specifications : inlet by special base. Outlet : silencer.

■ DESCRIPTION OF THE POWER SUPPLY UNITS' LABEL MARKING

STD 9 power supply unit label marking

Kremlin Rexson

MODELE/MODEL **STD9**
REFERENCE : 148 200 100

NORME EUROPEENNE : EN 50 050
EUROPEAN STANDARD
INERIS 03 ATEX0025X
INERIS 04 ATEX0093X
TENSION DE SORTIE : 12V=
OUTPUT VOLTAGE

CE 0080

STAINS

FRANCE

AVANT LA CONNECTION AU RESEAU ELECTRIQUE VERIFIER LA POSITION DU SELECTEUR DE TENSION.
Caution: Check voltage selector before connection 115V/230V

Le boîtier d'alimentation doit être interconnecté avec le système de ventilation
This equipment must be electrically interlocked with ventilating equipment

Le boîtier d'alimentation doit être placé en zone non dangereuse
[Exib] associative equipment to be used in a nonhazardous location only

-NE PAS OUVRIR SOUS TENSION-
DO NOT OPEN WHEN POWER IS ON

Explosion hazard : Substitution of components may impair suitability for the area to the power supply unit

TENSION ENTREE : 115/230 V
INPUT VOLTAGE : 50/60 Hz

PUISSANCE ENTREE : 40 VA
POWER SUPPLY

INDICE DE PROTECTION : IP54
PROTECTION LEVEL

INTENSITE SORTIE : 0,65 A
OUTPUT INTENSITY

KV

20% 100%

STD 9 A power supply unit label marking

Kremlin Rexson

MODELE/MODEL **STD9A**
REFERENCE : 148 200 450

NORME EUROPEENNE : EN 50 050
EUROPEAN STANDARD
INERIS 03 ATEX0025X
INERIS 04 ATEX0093X
TENSION DE SORTIE : 12V=
OUTPUT VOLTAGE

CE 0080

STAINS

FRANCE

AVANT LA CONNECTION AU RESEAU ELECTRIQUE VERIFIER LA POSITION DU SELECTEUR DE TENSION.
Caution: Check voltage selector before connection 115V/230V

Le boîtier d'alimentation doit être interconnecté avec le système de ventilation
This equipment must be electrically interlocked with ventilating equipment

Le boîtier d'alimentation doit être placé en zone non dangereuse
[Exib] associative equipment to be used in a nonhazardous location only

-NE PAS OUVRIR SOUS TENSION-
DO NOT OPEN WHEN POWER IS ON

Explosion hazard : Substitution of components may impair suitability for the area to the power supply unit

TENSION ENTREE : 115/230 V
INPUT VOLTAGE : 50/60 Hz

PUISSANCE ENTREE : 40 VA
POWER SUPPLY

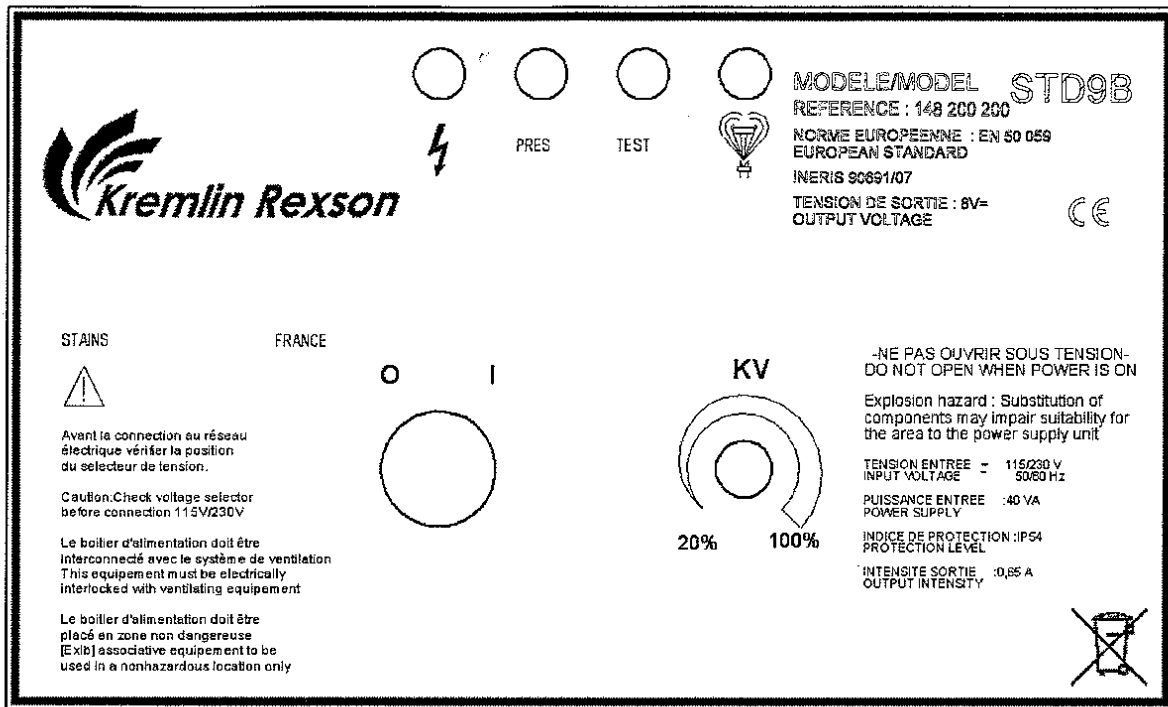
INDICE DE PROTECTION : IP54
PROTECTION LEVEL

INTENSITE SORTIE : 0,65 A
OUTPUT INTENSITY



KV

20% 100%

STD 9 B power supply unit label marking



COMMON INFORMATIONS ON THE STD9, STD9A, STD9B POWER SUPPLY UNITS

KREMLIN label	Manufacturer label
KREMLIN STAINS FRANCE	Name and address of the manufacturer
 Check voltage selector before connection This equipment must be electrically interlocked with ventilating equipment Associative equipment to be used in a non-hazardous location only	Safety instructions
DO NOT OPEN WHEN POWER IS ON	Safety instructions
	Indication on the environment (refer to § 2 - Environment)
Input voltage : 115 / 230V 50/60 Hz	Electric features
Power supply : 40VA	
Output intensity : max 0,65A	
Protection level : IP 54	Mechanical features

■ **SPECIFIC INFORMATIONS ON THE STD9 POWER SUPPLY UNIT**

MODELE/MODEL	Model : STD 9
REFERENCE	Equipment part number
NORME EUROPEENNE : EN 50 050 EUROPEAN STANDARD	Part number of the standard that specifies the requirements to get the certification
CE 0080	0080 : INERIS code that notifies the Quality Management System
INERIS 03 ATEX0026X INERIS 04 ATEX 0093X	Approval N° given by INERIS
TENSION DE SORTIE : 12V = OUTPUT VOLTAGE	Maximum voltage supplied by the box

■ **SPECIFIC INFORMATIONS ON THE STD9A POWER SUPPLY UNIT**

MODELE/MODEL	Model : STD 9 A
REFERENCE	Equipment part number
NORME EUROPEENNE : EN 50 050 EUROPEAN STANDARD	Part number of the standard that specifies the requirements to get the certification
CE 0080	0080 : INERIS code that notifies the Quality Management System
INERIS 04 ATEX 0093X	Approval N° given by INERIS
TENSION DE SORTIE : 12V = OUTPUT VOLTAGE	Maximum voltage supplied by the box

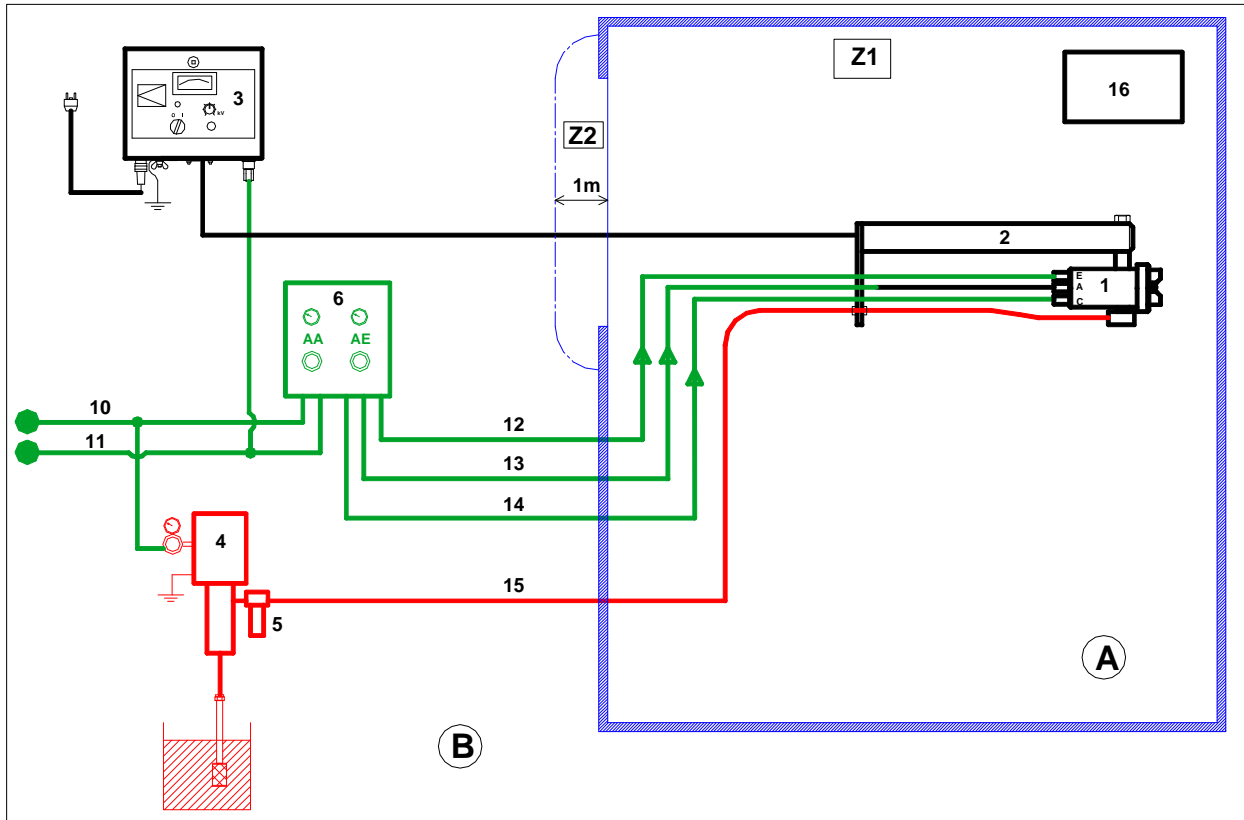
■ **SPECIFIC INFORMATIONS ON THE STD9B POWER SUPPLY UNIT**

MODELE/MODEL	Model : STD 9 B
REFERENCE	Equipment part number
NORME EUROPEENNE : EN 50 059 EUROPEAN STANDARD	Part number of the standard that specifies the requirements to get the certification
CE	Marking : conformity with the european directives
INERIS 90691/07	Certificate N° given by INERIS
TENSION DE SORTIE : 8V = OUTPUT VOLTAGE	Maximum voltage supplied by the box

5. INSTALLATION WITH STD9 & STD9A POWER SUPPLY UNITS

(REFER TO GENERAL SAFETY INSTRUCTIONS)

A safe electrostatic system installation requires compliance with all applicable safety standards and requirements outlined in this manual. Any improper installation or misuse of the electrostatic coating system can cause serious body injury, fire, explosion, or electric shock hazard. The European safety standard EN 50053 covers installation and operation regulations of electrostatic coating system.



Ind.	Description
A	Explosive area (area 1 and area 2) spray booth
B	Non explosive area
1	KA* Ex gun (depending on the model)
2	HV generator barrel
3	STD 9 A control supply unit
4	Fluid pump (pneumatic or AIRMIX® depending on the model)
5	Fluid filter
6	Air control box (option)

Ind.	Description
10	Main air supply line (P = max 6 bar / 87 psi)
11	Robot control air (P = mini 4 bar / 58 psi)
12	Air hose, Ø 6x8 (fan air)
13	Air hose, Ø 6x8 (central air)
14	Air hose, Ø 4x6 (control air)
15	Fluid hose (depending hose) For water-based paint → insulating specific hose (10 or 15 m long) For solvent paint → specific hose + AIRMIX® hose
16	Warning sign

The typical installation shown above is a guide for selecting and installing an electrostatic coating system.

Other installations can be used (with diaphragm pump, circulating, heated coating system, etc ..).

For assistance in designing other system, contact your local authorized KREMLIN REXSON distributor.

■ COMPRESSED AIR SUPPLY CONNECTION (Refer to the typical installation drawing)

Compressed air supply to the electrostatic coating system must be dry and clean. Dirt or moisture can ruin the quality of your finished workpiece and can cause the gun to malfunction.

To reduce the risk of electric shock or other serious injury, use only KREMLIN electrically conductive air hose (with green mark).

Interconnect the air hose (R) between the air valve (E) and the air inlet connection on the power supply (H). Interconnect the air hose (I) between the air outlet connection on the power supply (H) and the air inlet connection on the electrostatic gun (J).

With air filter/air pressure regulator (D), adjust atomizing air pressure - Min. 2 bar (29 psi) - Max. 6 bar (88 psi).

If necessary install an air line lubricator between the air pressure regulator (F) and the pump (L).

■ PRODUCT SUPPLY CONNECTION (Refer to the typical installation drawing)

Before connecting the fluid line (O), check that the hose is suited to the pump working pressure. Blow it out with air and flush it with solvent.

Never use damaged fluid hoses. Use only KREMLIN fluid hose designed for the resistivity range of the fluid to be sprayed.

Connect the fluid filter (M) onto the pump fluid outlet (L).

Connect the fluid drain valve (N) onto the fluid filter outlet (M).

Interconnect the fluid filter outlet (M) and the electrostatic spray gun (J) with a fluid hose (O).

■ VENTILATE THE SPRAY BOOTH

To prevent hazardous concentrations of toxic and/or flammable vapors, spray only in a correctly ventilated spray booth.

Never operate the spray gun when the ventilation system is stopped.

High velocity air exhaust will decrease the operating efficiency of the electrostatic system. (Air exhaust velocity of 30 meters (98.5 ft)/minute should be sufficient).

Nevertheless, before operating the electrostatic coating system, make sure that the air velocity of the spray booth complies with the local regulations.

■ ELECTRICAL CHECKS (Refer to the typical installation drawing)

Before connecting the power supply unit (H) on the main power source, be sure it is compatible with the local voltage source (115 VAC/60 Hz or 230 VAC/50 Hz).

Caution : if required, switch commutator (E) for appropriate local voltage source.

With a megohmmeter check the electrical grounding continuity between the ground connection of the power supply (H) and the grounded AC input power source (real earth connection).

Do not attempt to bypass or defeat the ground interconnections : failure to ground the power supply may result in an electrical shock hazard, fire or explosion.

6. POWER SUPPLY OPERATION

Plug power supply into the local power source.

Turn the power supply ON-OFF switch (D) to the "O" position – (refer to chapter 3 pour for all index n°).

Turn on air supply valve (E).

Set atomizing air pressure to more than 2 bar (29 psi) (e.g. 4 bars – 58 psi).

Turn the power supply ON-OFF switch (D) to the "I" position

The green indicator LED (VOLTAGE) illuminates.

The green indicator LED (TEST) illuminates.

Turn voltage adjustment knob fully clockwise.

The low voltage – adjusted by means of the potentiometer knob (F) – is then applied to the spray gun by the STD 9 power supply.

Trigger the gun : ***The yellow indicator LED illuminates.***

When spraying (switch at the rear of the gun turned to the ON position) a signal is sent via the magnet-ILS switch and detected by the power supply unit. This one provides the low voltage which will be converted into high voltage in the electrostatic spray gun. In this case → ***the red indicator LED illuminates.***

7. TROUBLESHOOTING

If the equipment is not in good working condition, systematically check out the power supply first and then the electrostatic spray gun (refer to INSTRUCTION MANUAL).

To check out the power supply, proceed as follows :

1 - Connect power supply to the compressed air network and set the pressure to 5 bar (73 psi).

2 - Connect gun air hose.

3 - Disconnect low voltage electrical cable.

4 - Turn the power supply ON-OFF switch (D) to the ON (I) position.

5 - Green indicator LEDs should illuminate (VOLTAGE and TEST).

→ **If all green indicator LEDs are not illuminated :**

Check the local power source and the fuse.
Otherwise, consult our nearest KREMLIN representative.

→ **If only the green indicator LED (TEST) is illuminated :**

Green indicator LED (VOLTAGE) is defective.

→ **If only the green indicator LED (VOLTAGE) is illuminated :**

Consult our nearest KREMLIN representative.

6 – Turn voltage adjustment knob (potentiometer) fully clockwise.

7 – Trigger the gun : red and yellow indicator LEDs should be illuminated, green indicator LED (TEST) should be OFF.

→ **If the red indicator LED is OFF :**

Reconnect low voltage electrical cable.
If voltage is present at the gun, the red indicator LED is defective.
If voltage is not present at the gun and the yellow indicator LED is illuminated :
consult our nearest KREMLIN representative.

→ **If the yellow indicator LED is OFF :**

From the flow switch or from the pressure switch, check if :
- an air pressure of 2 bar (29 psi) is provided
- the switch is working properly.

8. STD 9 B POWER SUPPLY UNIT

■ INSTALLATION

A typical installation designed to spray non-flammable conductive material (water-based paints) **must not be used** to handle flammable material (solvent-based paints).

The coating material equipment (pump or pressure pot) **must be installed inside the bubble** especially designed to receive such an equipment.

■ OPERATING PRINCIPLE

The K3 electrostatic gun is electrically supplied through the STD 9 B power unit (special water-based). The air flow-switch located in the STD 9 B power supply unit includes an air sensor - When the gun trigger is released, the electrical charge accumulated by the pump or the pressure pot is automatically evacuated through the ground.

■ TYPICAL INSTALLATION

Refer to ISO BUBBLE instruction manual and gun instruction manual.