



INSTRUCTION MANUAL
PROPORTIONING PUMP - MODEL PU 2120

Manual : 0609 573.057.110

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- Modif. : Cover of the motor

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INSTRUCTION MANUAL
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<u>SPARE PARTS :</u>	PU 2120 pump equipment	(Doc. 573.094.050)
	Proportioning pump	(Doc. 573.095.050)
	Air motor	(Doc. 573.023.050)
	Fluid section	(Doc. 573.024.050)
	Air supply	(Doc. 573.096.050)
	Air regulator	(Doc. 573.288.040)
	Manifold	(Doc. 573.097.050)
	Accumulator	(Doc. 573.098.050)

Dear Customer,

We thank you very much for purchasing our PU 2120 two-component pump. You are the owner of one of the most reliable pumping system available on the market.

Special care has been taken during all designing and manufacturing process to make sure your investment will provide full satisfaction.

To get the best result, safe and efficient operation of your equipment, we advice you to read and make yourself familiar with this instruction and service manual. Indeed, the non compliance with this instructions and precautions stated in this manual could reduce the equipment working life, result in operating trouble and create unsafe conditions.

1. EC DECLARATION OF CONFORMITY

The manufacturer : **KREMLIN REXSON** with assets of 6 720 000 euros

Head office : 150, avenue de Stalingrad – 93 245 - STAINS CEDEX - FRANCE

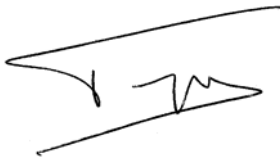
Tel. 33 (0)1 49 40 25 25 - Fax : 33 (0)1 48 26 07 16

Herewith declares that : proportioning pump, is in conformity with the provisions of :

EC - Machinery Directive (directive 98/37/EC) and with national implementing legislation.

Ex - ATEX Directive (Directive 94/9/EC) :  II 2 G (group II, class 2, gas).

Established in Stains, on march 1 st 2003,



Daniel TRAGUS
President

2. GENERAL SAFETY INSTRUCTIONS



WARNING : Any misuse of the equipment or accessories can damage them, result in serious body injury, fire or explosion hazard and reduce the equipment working life. Read, understand and comply with the safety instructions hereafter.

The personnel involved in operating and servicing this equipment must be aware of all the safety requirements stated in this manual. The workshop supervisor must be certain that the personnel has perfectly understood the safety instructions and complies with them.

Read all instruction manuals as well as the tags of the equipments before operating the equipment.

Read local safety instructions and comply with them.

■ INSTALLATION REQUIREMENTS

 **Ground the equipments.**

Use the equipment only in a well-ventilated area to prevent from serious body injuries, fire and explosion hazards. Do not smoke in the spray area.

Never stock paints and solvents in the spray area. Always close the pots and the tins.

When using flammable products, take precautions and in agreement with standards.

Always keep the spray area clean and free from debris (solvent, rags,...).

Read paint and solvent manufacturer's technical instructions.

Spraying of some materials may result in hazardous working conditions. To protect the operator, respirator mask, hand cream and glasses are required (Refer to chapter "Safety equipment" of KREMLIN selection guide).

■ EQUIPMENT REQUIREMENTS

The operating pressure of these equipments is particularly high. Consequently, some precautions must be taken in order to prevent from accidents and from unsafe working conditions.

➔ **Never exceed the components maximum working pressure of the equipment.**

HOSES

Do not use hoses with a maximum burst-proof pressure less than four times the maximum service pressure of the pump (see data sheet).

Be certain hoses are in good conditions and showing no evidence of damage.

➔ **Use only air hose with static conductor to connect the pump with the spray gun.**

All fittings must be tight and in good condition.

PUMP

➔ **Ground the equipment (use the connection on the pump).**

The compressed air supply must not be higher than 6 bar / 87 psi.

Use the appropriate solvent for the material being sprayed to increase the equipment working life.

Do not use any product or solvent incompatible with the pump components. For specific cases, contact your authorized supplier to get the appropriate solvents for the preparation of the materials or cleaning of the pump.

GUN

Never wipe the end of the tip with the fingers.

Always depressurize air and hoses before carrying out any servicing on the gun.

Never point the spray gun at anyone or at any part of the body.

■ MAINTENANCE REQUIREMENTS

➔ **Never modify these equipments.**

Check them daily, keep them in a good condition and replace the worn parts **only with KREMLIN parts.**

Before cleaning or removing components of the equipment, it is compulsory :

- 1 - to stop the compressed air supply,**
- 2 - to open the pump drain valve,**
- 3 - to trigger the gun to depressurize the hoses.**

3. TECHNICAL FEATURES

The PU 2120 fixed ratio pump is used for applying two-component material with one or two spray guns. This model is mounted on cart and composed of a flushing pump, a mixer, a manual selector PRODUCT/SOLVENT, a suction rod for BASE material and a gravity container for CATALYST material.

Mix ratio From 1/1 to 6/1 (according to the mix ratio kit selected)
 Viscosity 180 s CA4 maxi
 Air motor model 340-2

Mix ratio	Dispensing capacity A (cm3 / CU.CM)	Dispensing capacity B (cm3 / CU.CM)	Dispensing capacity A + B (cm3 / CU.CM)	Flow rate at 20-cycles (l / US gal)		Pressure ratio	Fluid pressure at 4.5 bar/65 psi (bar / psi)
1/1	85	85	170	3.4	0.9	0.92/1	4.14
1.5/1	85	56	141	2.8	0.74	1.12/1	5.04
2/1	85	42.5	127.5	2.6	0.69	1.25/1	5.62
2.5/1	85	34	119	2.4	0.63	1.34/1	6.0
3/1	85	28.3	113.3	2.3	0.61	1.41/1	6.34
3.5/1	85	24.2	109.2	2.2	0.58	1.47/1	6.6
4/1	85	21.25	106.25	2.12	0.56	1.51/1	6.8
4.5/1	85	18.8	103.8	2.08	0.55	1.55/1	6.97
5/1	85	17	102	2.04	0.54	1.58/1	7.11
6/1	85	14.1	99.1	1.98	0.52	1.63/1	7.33

Air supply pressure 2 bar / 29 psi minimum - 6 bar / 87 psi maximum
 Proportioning pump air consumption On average, 5 times the material flow rate.

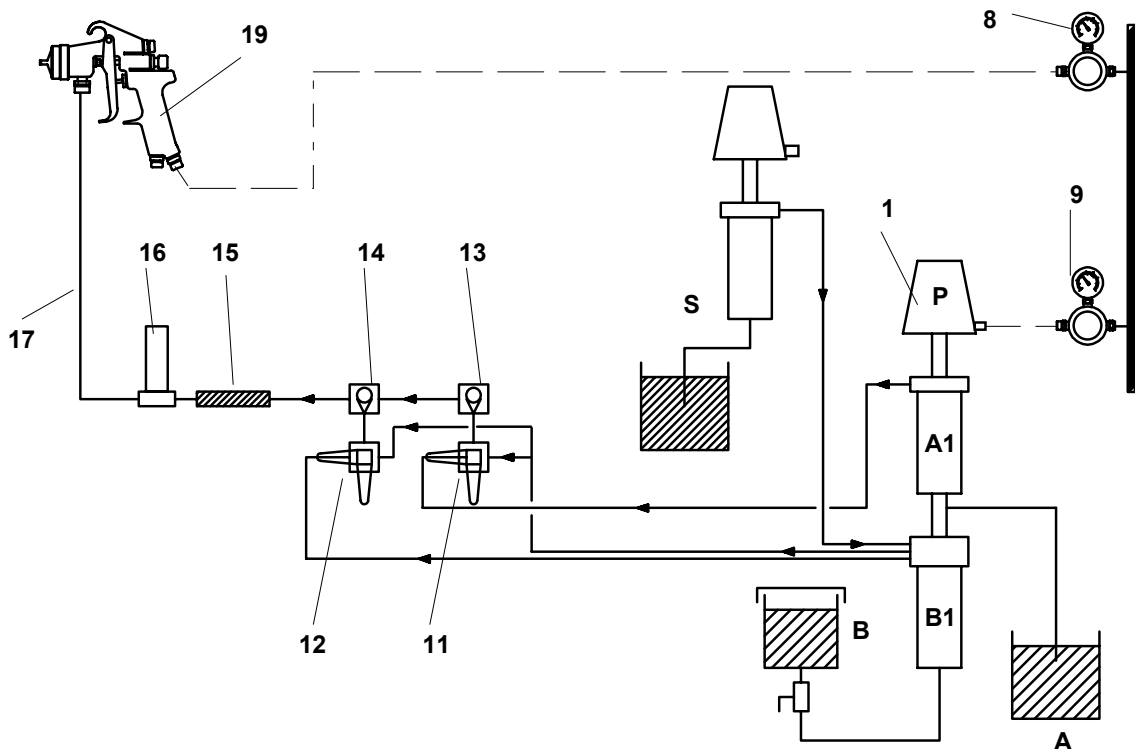
Flushing pump..... Model : 02.75
 Theoretic ratio : 1,6/1
 Flow rate : 5,1 liters / 1.35 US gal at 60 cycles

Wetted parts Mixer : corrosion resistant steel and polyethylene
 Check valves : corrosion resistant steel
 Pump cylinder : Stainless steel

Connections Air inlet : F 3/8 BSP
 Air outlet : M 1/4 NPS
 Material outlet (manifold) : M 1/2 JIC

System weight..... 50 kg / 110 lb
 Overall dimensions..... 110 x 55 x 50 cm
 Maximum operating temperature 60°C / 140° F
 Noise level 80 dB A

4. OPERATING PRINCIPLE



This pump measures and mixes 2 components A and B to a single defined proportion (see data sheet of the product).

The fluid sections A1 and B1 are coupled to an air motor P. Their sizes have been calculated in order that each delivers the components A and B to the predetermined proportion.

Three-way valves (11 and 12) select either the **PRODUCT** or the **SOLVENT**.

■ IN PRODUCT POSITION :

- ◆ Fluid section (A 1) draws and delivers the BASE A.
- ◆ Fluid section B1 draws and delivers the CATALYST B.
- ◆ Valves (11 and 12) are placed in the "PRODUCT" position.

When pulling gun trigger (19), proportioning pump (1) starts cycling and draws the BASE and CATALYST. Both materials are measured. Simultaneously they are delivered in valves (11 and 12), pass through check valves (13 and 14) and are mixed in static mixer (15). Then, they flow out completely mixed before passing through hose (17) to the gun.

As soon as the gun trigger is released the proportioning pump stops cycling :

- ◆ Regulator/gauge unit (9) regulates and denotes the air pressure to the proportioning pump, thus regulating material delivery at the gun.
- ◆ Regulator/gauge unit (8) regulates and denotes the atomizing air pressure to the gun.

■ IN SOLVENT POSITION :

When pulling gun trigger, the solvent pump starts cycling. It enables the solvent to flow in the tightness packing of CATALYST fluid section (B1); then, the solvent flushes valves (11 and 12), check valves (13 and 14), mixer (15), accumulator (16), material hose (17) and gun (19).

5. INSTALLATION - START UP

The pumps are designed to be installed in a spray booth.

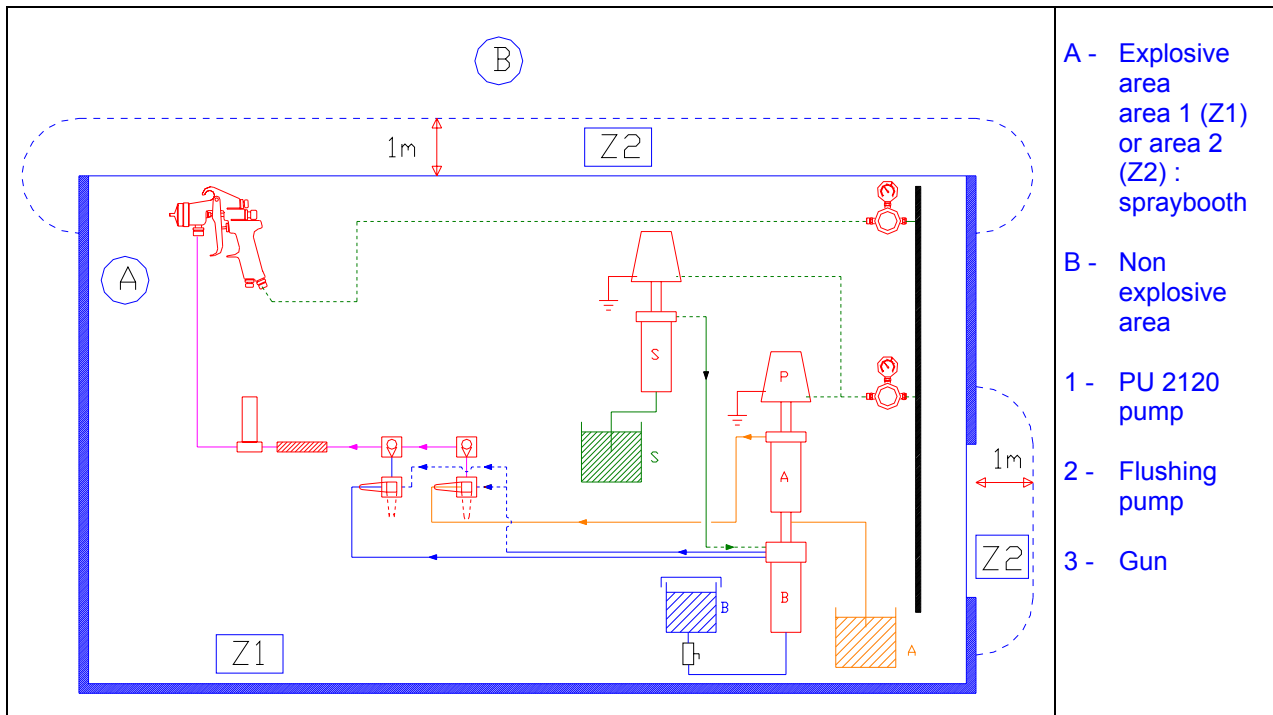
■ DESCRIPTION OF THE LABEL MARKING

Marking in accordance with the ATEX directive

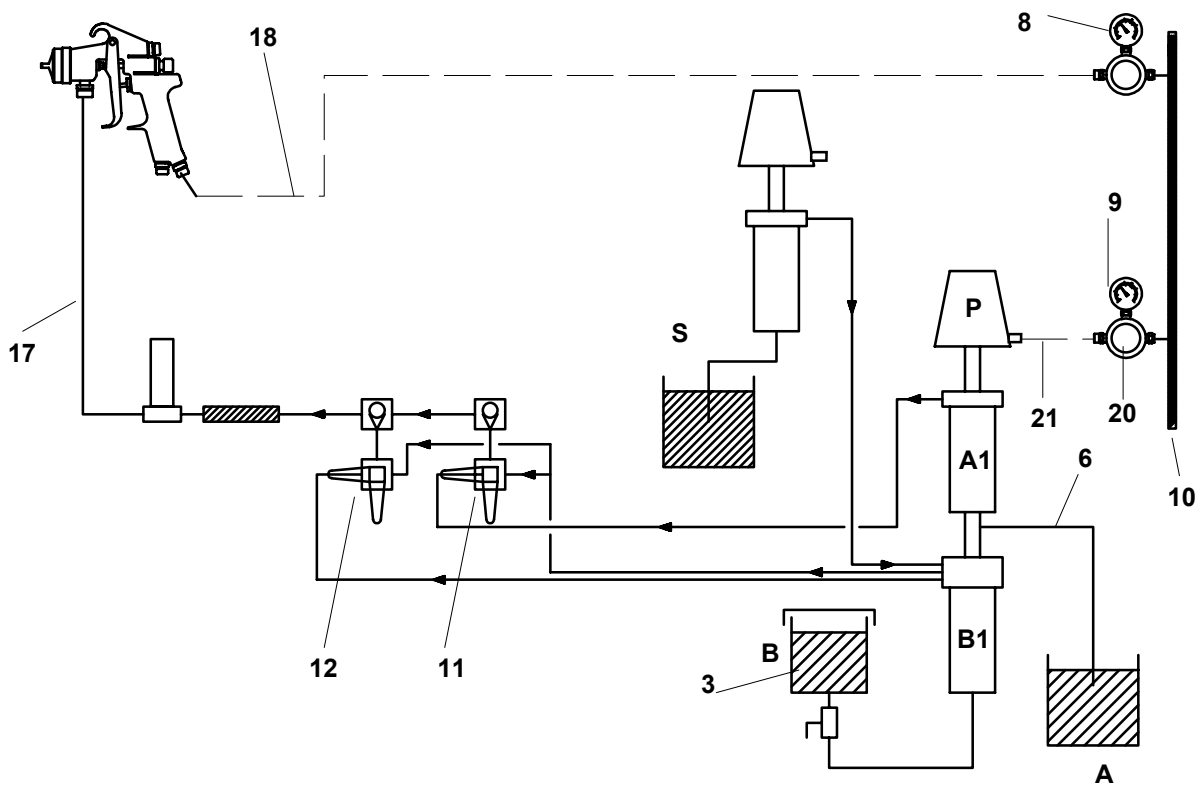
KREMLIN REXSON	TYPE	<input type="text"/>
	RATIO	<input type="text"/>
	SERIE-SERIAL	<input type="text"/>
CE	P air	6 bar - 87 psi
Ex II 2G	P prod	<input type="text"/> bar-psi
STAINS FRANCE		

KREMLIN REXSON 93240 STAINS FRANCE	Name and address of the manufacturer
Ex II 2 G	II : group II 2 : class 2 Surface equipment meant to area where explosive atmospheres due to gas, vapours, mists or air mixtures with dusts will probably appear. G : gas
TYPE	Pump version : PU 2120
RATIO	Mixing ratio
SERIE - SERIAL	Number given by KREMLIN REXSON
P air : 6 bar / 87 psi	Air supply maximum pressure of the pump motor
P prod : xx bar / xx psi	Maximum fluid pressure at the pump outlet

■ INSTALLATION DIAGRAM



■ INSTALLATION



1 - Prepare the materials :

- ◆ Fill up container with material A (BASE)
- ◆ Fill up gravity container (3) of the pump (maximum 10 liters / 2.6 US gal) with material B (CATALYST).
- ◆ Fill up a container with cleaning solvent.

2 - Interconnect hoses (18) and (17) between the pump and the gun :

- ◆ the hose should be static proof (green band). I.D. 7 mm / 9/32".
- ◆ the hose (17) should withstand solvents (red band). I.D. 10 mm / 13/32".

3 - Connect the pump to the compressed air system with a static proof hose - ID 10 mm/ 13/32".

Nota : these hoses are not included in the equipment.

■ START UP :

- 1 - Fill the wetting cups of BASE and flushing pumps with T lubricant.
- 2 - Supply the equipment with compressed air (10) - (maxi. 6 bar / 87 psi - clean air).
- 3 - Insert suction rod (6) into BASE container and open the CATALYST container valve.
- 4 - Regulate pressure (9) to about 3 bar / 43 psi with red knob (20).
- 5 - Make sure valves (11 and 12) are placed in the "PRODUCT" position.
- 6 - Point the gun into a waste container and press the trigger.
- 7 - Adjust the desired flow rate with red knob (20).
- 8 - Adjust the atomizing air pressure with red knob (8).

6. ADJUSTMENTS

TROUBLE	CAUSE	SOLUTION
Coating not thick enough	Not enough material	Increase the material fluid pressure using red knob. Spray slower or closer to part being painted. Use the next higher nozzle size.
Sags, runs	Too much material	Decrease the material pressure using red knob. Spray faster or farther from part being painted. Use the next smaller size.
	Distorted spray fan	Refer to gun instruction manual.

7. CHANGING MIX RATIO

The PU 2120 features a fixed ratio proportioning system.

However, it is simple procedure to change this ratio by replacing some parts of the CATALYST fluid section (refer to PU 2120 parts identification list : mix ratio kit).

8. SHUTDOWN AT THE END OF WORK

Before stopping the spray operation for a period of time longer than the pot life of the catalyzed material, it is necessary to flush the equipment by the following procedures.

■ PARTIAL FLUSHING :

- 1 - Place valves (11 and 12) in the "SOLVENT" position.
 - 2 - Remove gun air cap and clean it carefully.
 - 3 - Close regulator/gauge unit (8).
 - 4 - Make sure solvent container is full of CLEAN solvent.
 - 5 - Disconnect hose (21) from the proportioning pump air motor of the pump and connect it to the solvent pump air motor.
 - 6 - Point the gun into a waster container and press the gun trigger until clean solvent continues to be dispensed through the gun.
 - 7 - Disconnect the hose (21) and press gun trigger to relieve all pressure in the system.
 - 8 - Reconnect the hose (21) to the proportioning pump air motor.
- Leave the equipment until a next utilization.

■ COMPLETE FLUSHING : Only for material change/color change or long duration shutdown.

- 1 - Carry out a partial flushing (procedures from 1 to 6).
- 2 - Empty CATALYST container and replace CATALYST with CLEAN solvent.
- 3 - Insert BASE suction rod into a container of CLEAN solvent.
- 4 - Remove gun aircap and clean it.
- 5 - Place the valves (11 and 12) in the "PRODUCT" position.
- 6 - With red knob (20) adjust the pressure to 2 or 3 bar / 29 to 43 psi.
- 7 - Point the gun into a waster container and press gun trigger until clean solvent continues to be dispensed through the gun.
- 8 - Disassemble and clean accumulator (16) and static mixer (15).

- Repeat this procedure twice using some CLEAN solvent to get a perfect flushing.
- 9 - Install the air cap onto the gun.
 - 10 - Shut off the main air supply.
 - 11 - Leave the pump filled with clean solvent.

9. DAILY CARE

■ SPRAY GUN

Comply with the usual instructions of spray gun servicing (refer to spray gun manual).

■ PUMP

Make sure the wetting cup of each pump is always filled up with T lubricant (this T lubricant will normally be coloured by the paint).

Regularly clean the wetting cup with solvent after having drained the lubricant.

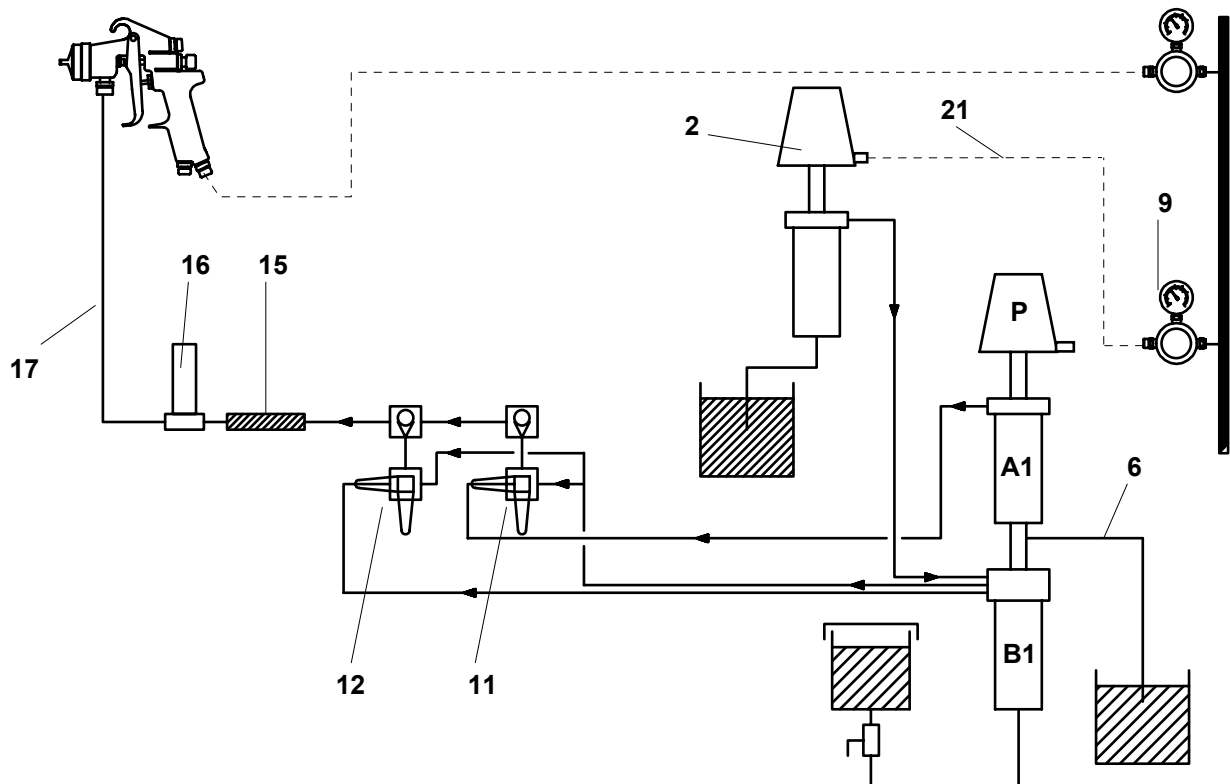
Make sure that the suction strainers and rods are clean and in good condition.

Flush the pump as often as necessary.

Never inject oil into the compressed air supply.

When stopping the pump, always leave it filled up with material.
For a short duration, if the flushing has not been carried out, leave the pump filled up with material.
For a long duration, after flushing the pump, leave it filled up with solvent.

10. TROUBLESHOOTING



■ PROPORTIONING PUMP DOES NOT OPERATE

1 - Check :

- ◆ It is supplied with compressed air.
- ◆ Hose (21) is connected to the proportioning pump.
- ◆ Valves (11 and 12) are set to the "PRODUCT" position.
- ◆ Gauge (9) indicates a pressure between 2 and 5 bar / 29 and 72 psi.
- ◆ The gun filter screen is not clogged (for model with filter screen).

2 - Place valves (11 and 12) in the SOLVENT position, connect the air hose (21) to air motor (2) and press the gun trigger :

- ◆ If solvent pump (2) operates normally, the proportioning pump is defective. Consult your nearest KREMLIN authorized distributor.
- ◆ If solvent pump (2) does not operate; check that mixer (15) (15), accumulator (16) and hose (17) are not clogged. Check also that the gun nozzle is not obstructed.

■ THE CLEANING SYSTEM DOES NOT OPERATE :

Carry out the same checkings as described before.

■ RATIO CHECKING :

At least once per shift or whenever it is suspected that the material mix ratio (BASE/CATALYST) is not in accordance with specifications, check the material as follows :

- 1 - Mark on the translucent CATALYST container the volume of CATALYST. Then, add a volume of CATALYST (1 liter / 0.26 US gal for example).
- 2 - Determine the volume of the BASE in the BASE container.
- 3 - Operate the proportioning system until the CATALYST level in the container falls to the original volume (before adding CATALYST).
- 4 - Determine the volume of BASE used. In this case, the ratio is :

$$\frac{\text{Volume of BASE used (in liters)}}{1 \text{ liter}} = \text{Material mix ratio} *$$

* *The mix ratio found should be the same one as the one indicated on the CATALYST fluid section (accuracy : $\pm 5\%$). In the opposite case, consult your nearest KREMLIN authorized distributor for pump checking.*

11. DISASSEMBLY

CATALYST FLUID SECTION (refer to Doc. 573.095.050)

■ SUCTION VALVE

Unscrew suction valve body (58) from the cylinder.

The ball (59) is secured on the seat by means of a stop ring (60).

Reinstall suction valve assembly and check if O-Ring (56) is not damaged.

■ EXHAUST VALVE

Unscrew cylinder (51).

Unscrew seat (54) by holding valve support (52) to remove ball (55).

Check if cup seal (53) is not damaged.

Reinstall the parts in the reverse order. Be certain seat (54) is fully screwed on valve support (52).

■ CARTRIDGE

Disassemble CATALYST fluid section from BASE fluid section :

- unscrew nuts which secure the tie rods (5) and the flange (49).
- remove cotter pin (43) and connecting pin (42).

Unscrew the screws (64). Remove washer (63). Pull cartridge (45) upwards and remove it.

Reinstall in the reverse order. Be careful not to damage the seal when inserting piston rod (44) into cartridge (45).

BASE FLUID SECTION (refer to Doc. 573.095.050)

To disassemble the BASE fluid section, remove the CATALYST fluid section and tie-rods (5).

■ SUCTION VALVE

Unscrew suction valve body (28).

The ball (29) is secured on the seat by means of a stop ring (30).

Reinstall suction valve assembly and check if seal (26) is not damaged.

■ EXHAUST VALVE

Unscrew cylinder (25).

Unscrew seat (23) by holding valve support (22) to remove ball (21).

Check if cup seal (20) is not damaged (20).

Reinstall the parts in the reverse order. Be certain seat (23) is fully screwed on valve support (22).

■ CARTRIDGE

To separate BASE fluid section from air motor, remove tie-rods (2), cotter pin (4) and connecting pin (3).

Remove circlips (18) located in the fluid section flange (19) and pull cartridge (15) downwards.

Reinstall in the reverse order. Be careful not to damage the seal when inserting piston-rod (14) into cartridge (15).

AIR MOTOR (refer to doc. 573.023.050)

■ AIR MOTOR VALVE

Disassemble the cover (15) by removing the 3 M6 screws (26).

Unscrew the air motor valve (14) by holding on the control rod (12).

Reinstall the new air motor valve (14) and block it on the control rod (12) via the two flat parts located at its end.

Reinstall the cover (15) with its 3 nuts (26) :  **maximum screwing torque : 4mN / 2.95 ft/lbs**