



INSTRUCTION MANUAL
FLOWMAX® AIRMIX® PROPORTIONING PUMP
MODEL PU 2160 F

Manual : 0811 573.182.112

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Modif. : New manifold

KREMLIN REXSON – 150, avenue de Stalingrad
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INSTRUCTION MANUAL
**FLOWMAX® AIRMIX® PROPORTIONING PUMP
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SPARE PARTS :

Two-component pump, model PU 2160 F	(Doc. 573.331.050)
Bare proportioning pump	(Doc. 573.332.050)
Motor	(Doc. 573.272.050)
Mixing / flushing manifold	(Doc. 573.333.050)

Dear Customer,

We thank you very much for purchasing our PU 2160 F Flowmax® Airmix® 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

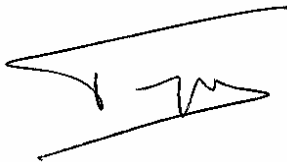
Head office : 150, avenue de Stalingrad - 93 245 - STAINS CEDEX - FRANCE
Tél. 33 (0)1 49 40 25 25 - Fax : 33 (0)1 48 26 07 16

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

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

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

Established in Stains, on March 1st 2003,



Daniel TRAGUS
President

2. WARRANTY

We reserve the right to make changes; these changes may be carried out after the receipt of our order. No claim will be accepted as a consequence of any change carried out in the instruction manuals or in the selection guides.

Our equipment is checked and tested prior to shipment. In the case of a problem arising with the equipment, this must be in writing, within ten days from the delivery date.

KREMLIN REXSON warrants all equipment manufactured bearing its name, to be free from defect in material or workmanship for a period of 12 months (one shift per day or 1800 hours - 1 term reached) from the date of delivery. Work life is based on single shift working - 8 hours per day. Warranty claims for defective items will only be accepted in writing and will be verified and confirmed by us.

The warranty does not cover fair wear tear, damage or wear caused by misuse, improper maintenance or non-observance of our recommendations.

KREMLIN REXSON will repair or replace parts (carriage paid to our plant and accepted as defective by us). We shall not be liable for any losses, resulting from a production breakdown. Upon request, we can carry out service work at your premises; all expenses (travelling and accommodation) for KREMLIN REXSON technicians will be chargeable.

In the event that it is found that equipment has been tampered with, this will invalidate the warranty. Equipment that is bought in will be subject to the supplier's warranty.

3. SAFETY INSTRUCTIONS

GENERAL SAFETY INSTRUCTIONS



CAUTION : The equipment can be dangerous if you do not use it according to the rules mentioned in this instruction manual. Read carefully all the instructions hereafter before operating your equipment.

Only trained operators can use the equipment (To acquire an essential training, please contact the "KREMLIN REXSON University" training center - Stains).

The foreman must ensure that the operator has perfectly taken in the safety instructions of this equipment as well as the instructions in the manuals of the different parts and accessories.

Read carefully all instruction manuals, label markings before operating the equipment.



















Incorrect use may result in injury. This equipment is for professional use only. It must be used only for what it has been designed for.

Never modify the equipment. The parts and accessories must be supplied or approved by KREMLIN REXSON. The equipment must be regularly inspected. Defective or worn parts must be replaced.

Never exceed the components' maximum working pressure of the equipment.

Comply with regulations concerning safety, fire risks, electricity in force in the country of final destination of the material. Use only products or solvent compatible with the parts in contact with the material (refer to data sheet of the material manufacturer).

PICTOGRAMS

					
NIP HAZARD	WARNING : MOVING ELEVATOR	WARNING : MOVING PARTS	WARNING : MOVING SHOVEL	DO NOT EXCEED THIS PRESSURE	HIGH PRESSURE HAZARD
					
RELIEF OR DRAIN VALVE	WARNING : HOSE UNDER PRESSURE	WEAR GLASSES OBLIGATORY	WEAR OF GLOVES IS OBLIGATORY	PRODUCT VAPOR HAZARD	WARNING : HOT PARTS OR AREAS
					
ELECTRICAL HAZARD	WARNING : FIRE HAZARDS	EXPLOSION HAZARDS	GROUNDING	WARNING (USER)	WARNING : SERIOUS INJURIES

PRESSURE HAZARDS



Current legislation requires that an **air relief** shut off valve is mounted on the supply circuit of the pump motor to let air off when closing the supply circuit. Without this precaution, the motor residual air of the motor may let the pump beat and cause a serious injury.

Please ensure that, a **material drain valve** is mounted on the material circuit to drain it (after shutting down air to the motor and the pressure relief) before any servicing on the equipment. These valves must be closed for air and opened for product when processing.

HIGH PRESSURE INJECTION HAZARDS



When working with high pressure equipment, special care is required. Fluid leaks can occur. Then there are injection risks in exposed parts of body that may cause severe injuries or amputations :

- Medical care must be handled immediately if product is injected under the skin or in other parts of the body (eyes, fingers).
- Never point the spray gun at any one. Never try to stop the spray with your hands or fingers nor with rags or similars.
- **Follow the shut down procedure and always depressurize air and fluid circuits** before carrying out any servicing on the gun (cleaning, checking, maintenance of the materials or cleaning of the gun nozzles).
- For the guns equipped with a safety device, always lock the trigger when you do not start the gun.

FIRE - EXPLOSION - SPARKS - STATIC ELECTRICITY HAZARDS



A poor earth connection, inadequate ventilation, sparks or static electricity can cause an explosion or fire. To avoid these risks when using or servicing KREMLIN REXSON equipment, the following safety procedures must be followed :

- ensure a good earth connection and ground the parts to be handled i.e. solvents, materials, components and equipment,
- ensure adequate ventilation,
- keep working area clean and free from waste solvents, chemicals, or solid waste i.e. rags, paper and empty chemicals drums,
- never use electrical switches / power if in an atmosphere of volatile solvent vapour,
- stop working immediately in case of electrical arcs,
- never store chemicals and solvents in the working area,
- use paint whose flash point is the highest possible to prevent from any formation of gas and inflammable vapours (refer to materials' safety instructions),
- install a cover on the drums to reduce the diffusion of gas and vapours in the spraybooth.

TOXIC PRODUCT HAZARDS



Toxic products or vapours can cause severe injury not only through contact with the body, but also if the products are ingested or inhaled. It is imperative :

- to know the material products and their risks,
- notified or hazardous materials must be stored in accordance with the regulations,
- the material must be stored in an appropriate container, never place materials in a container where there is a risk of spillage or leakage,
- a procedure must be applied for the safe disposal of waste material. It must comply with all prevailing regulations and legislations of the country where the equipment is to be used,
- protective clothing should always be worn in compliance with the material manufacturers' recommendations,
- depending on the application and chemical safety instructions, safety glasses, gloves, foot wear, protective masks and possible breathing equipment should be worn to comply with the regulations.

(Refer to chapter 'Safety equipment' of KREMLIN selection guide).



CAUTION!

It is forbidden using any solvent or with halogenated hydrocarbon base and also products with these solvents facing **aluminium** or **zinc**. The non-compliance with the instructions may cause explosion hazards causing serious or fatal injuries.



EQUIPMENT REQUIREMENTS

PUMP

Before carrying out any work, it is imperative to get used with the compatibilities of motors with pumps before coupling. The operator shall understand the equipment and the safety instructions. These instructions are available in the manuals of the pumps.



The air motor is designed to be mounted with a pump. Never modify any components or couplings. When operating, please keep hands away from moving parts. Before starting up the equipment, please read the PRESSURE RELIEF instructions. Please ensure that any relief or drain valves fitted are in good working order.



HOSES

- Keep hoses out of circulation areas, moving parts or hot surfaces,
- Never expose product hoses to temperature higher than + 60°C / 140° F or lower than 0° C / 32° F,
- Never pull or use the hoses to move the equipment,
- Tighten all fittings as well as the hoses before operating the equipment,
- Check the hoses regularly; change them if they are damaged,
- Never exceed the working pressure (WP) indicated on the hose.

USED PRODUCTS

Considering the variety of products that may be used by the users and the impossibility to check off all chemical data, of possible reactions of chemicals to each other and their long term evolution, KREMLIN REXSON can not be considered as liable for :

- the bad compatibility of wetted parts,
- risks for staff and surroundings,
- for worn or out of order parts, for wrong working of equipments or units, as well as for the qualities of final product.

The user must know and prevent the possible risks as toxic vapours, fires or explosions due to used products. He shall determine the risks of immediate reactions or pursuant to repeated exposures of the staff.

KREMLIN REXSON shall not be liable for psychic injuries, direct or indirect material damages further to the use of chemicals.

SPECIFIC SAFETY INSTRUCTIONS OF THE PUMP, MODEL PU 2160F

- ➔ Use only non-static quality air hose to connect the pump to the spray gun,
- ➔ Ground the pump (use the connection on the pump),
- ➔ The compressed air supply must not exceed 6 bar / 87 psi.
- ➔ Make sure the lubricant in the cup of the fluid section is compatible,
- ➔ Use the appropriate solvent for the material being sprayed to increase the equipment working life.

4. TECHNICAL FEATURES

The PU 2160 F fixed ratio pump is used for applying two component material with one Airmix ® gun.

The proportioning pump is mounted on a cart and composed of :

- a mixer,
- a PRODUCT/SOLVENT selection assembly,
- a suction rod and a drain rod for BASE,
- a suction rod for the solvent,
- a gravity container and an hose for CATALYST.

Mix ratio 1/1, 2/1, 5/1, 10/1 (depending upon choice of CATA fluid section)

Viscosity..... 180 s CA4 maxi

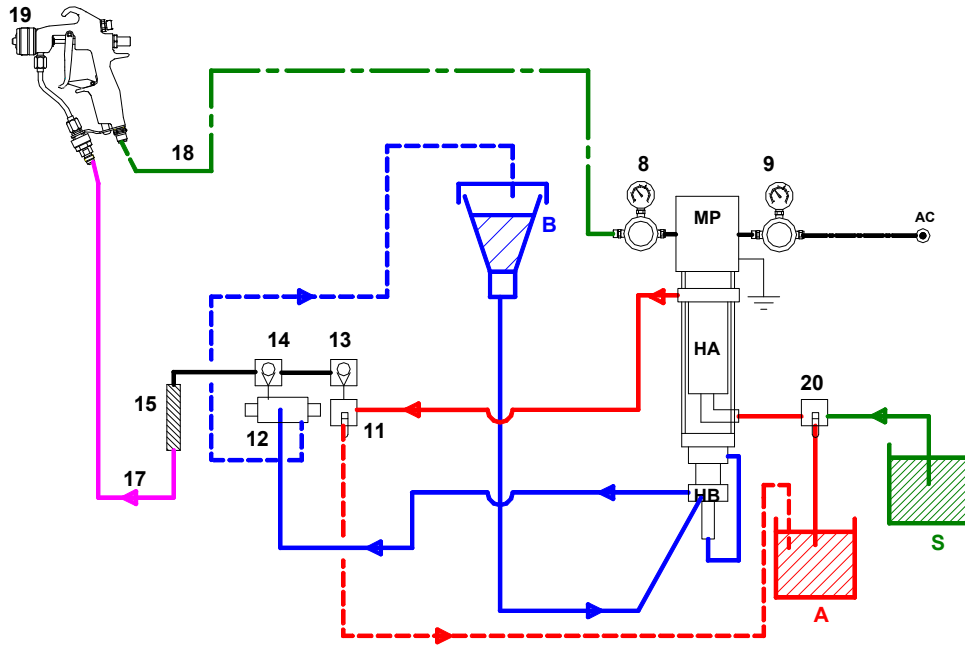
Motor type 700-2

The BASE fluid section is an Intensive™ version. The CATALYST fluid section is a FLOWMAX® technology.

Mix ratio	Delivery per cycle (cm3)		Flow rate at 20 cycles (l / US gal)	Pressure ratio	Fluid pressure at 6 bar / 87 psi (bar / psi)	Fluid pressure at 4 bar / 58 psi (bar / psi)
	A	B				
1/1	19	19	0.8 / 0.21	10	60 / 870	40 / 580
2/1	19	9,5	0.6 / 0.16	15	90 / 1305	60 / 870
5/1	19	3,8	0.5 / 0.13	18	108 / 1566	72 / 1044
10/1	19	1,9	0.4 / 0.10	20	120 / 1740	80 / 1160

Air supply pressure	Minimum : 3 bar / 43.5 psi - Maximum : 6 bar / 87 psi
Air consumption of the proportioning pump (Nm3/h)	1,2 x (mixed fluid flow rate in l/mn) x pump ratio x (motor air pressure + 1 bar) x 60/1000
Wetted parts	<p>PU with 1/1, 2/1 & 5/1 ratio</p> <ul style="list-style-type: none"> • BASE and CATA fluid section :stainless steel • CATA circuit : stainless steel • Mixer : stainless steel, treated steel and polyethylene <p>PU with 10/1 ratio</p> <ul style="list-style-type: none"> • BASE fluid section : stainless steel • CATA fluid section : 316L stainless steel • CATA circuit : 316L stainless steel • Mixer : 316L stainless steel and polyethylene <p>Bellows : PTFE</p>
Fittings	<p>Air inlet : F 3/8 BSP</p> <p>Spraying air : M 1/4 NPS</p> <p>Fluid outlet (manifold) : M 1/2 JIC</p>
Overall weight	60 kg / 132 lb
Dimensions	110 x 55 x 50 cm
Maximum operating temperature	50° C / 122° F
Noise level (to 1m)	80 dB A (depending upon ISO 3746 standard)

5. OPERATING PRINCIPLE



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

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

- ♦ Fluid section HA draws and delivers the BASE A.
- ♦ Fluid section HB draws and delivers the CATALYST B.

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

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

- ♦ The regulator (9) regulates the air pressure to the pump, thus regulating material pressure.
- ♦ The regulator (8) regulates the atomizing air pressure to the gun.

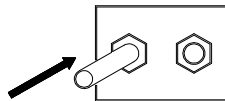
Nota :

The valve (11) is a three-ways' valve :

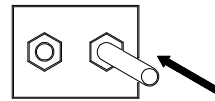
- handle horizontally \Rightarrow fluid circulation (priming stage),
- handle vertically \Rightarrow fluid towards mixer (working stage, flushing stage).

The valve (12) is a color changer fitted with 2 fluid valves. These valves are piloted pneumatically alternately, connecting the air tube in spiral on one or the other valve :

Left connection \Rightarrow fluid circulation (priming stage)



Right connection \Rightarrow fluid towards mixer (working stage).



Nota : During the FLUSHING stage,

- the BASE fluid section draws solvent; that solvent is exhausted towards the manifold, the mixer and the gun.

\hookrightarrow the BASE circuit and the mixed circuit will be flushed.

- the catalyst circulates. The CATALYST circuit is not flushed.

6. INSTALLATION

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

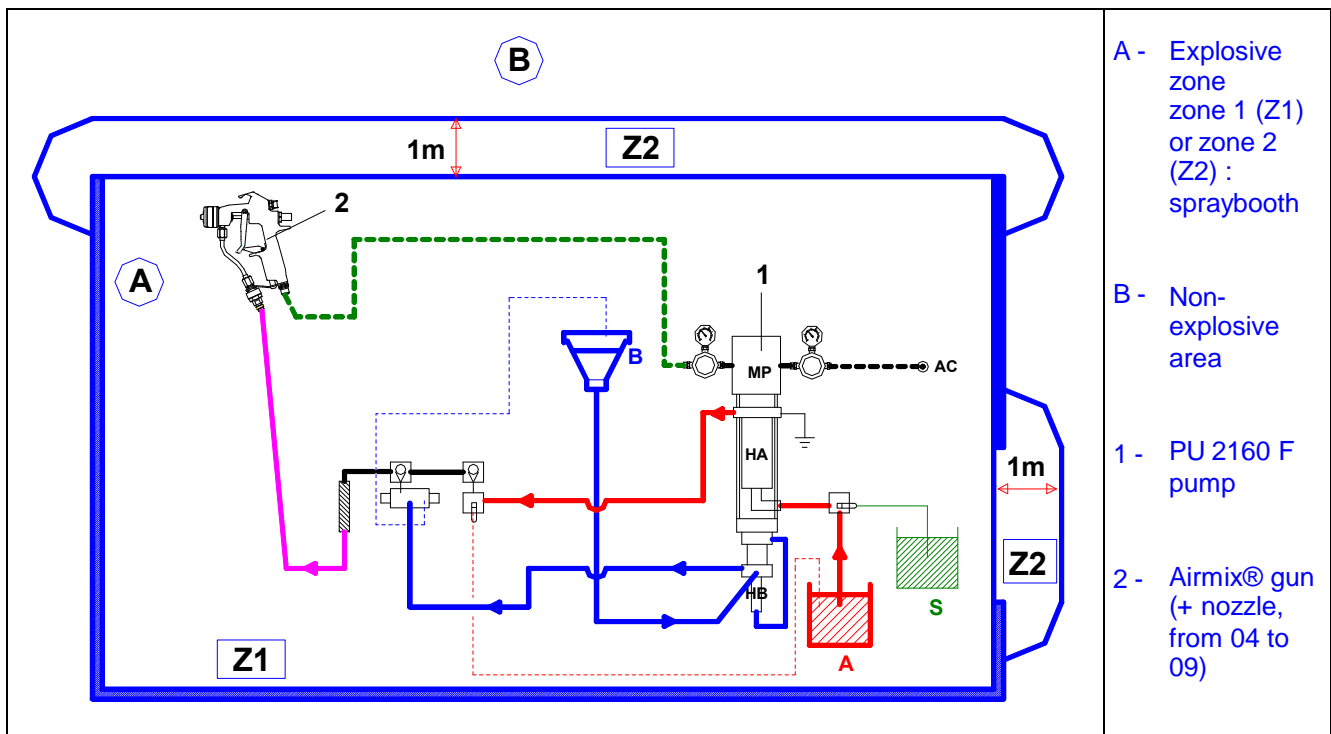
DESCRIPTION OF THE LABEL MARKING

Marking in accordance with the ATEX directive

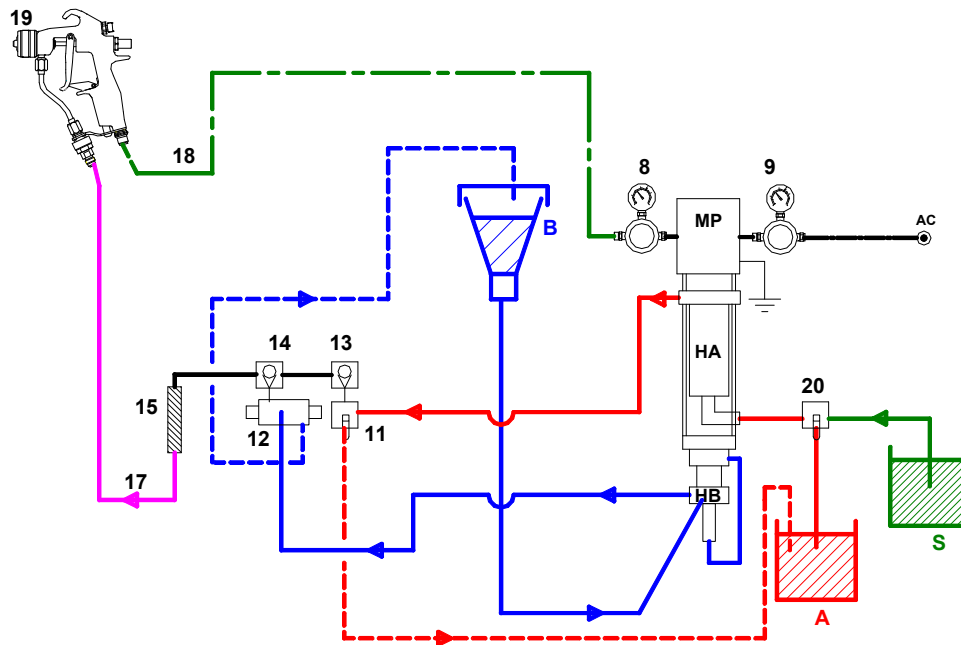
KREMLIN REXSON	TYPE	<input type="text"/>
	RATIO	<input type="text"/>
	SERIE-SERIAL	<input type="text"/>
CE	P air	6 bar - 87 psi
Ex II2G	P prod	<input type="text"/> bar-psi
STAINS FRANCE		

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 an area where explosive atmospheres due to gas, vapours, mists are liable to appear from time to time in usual operating. G : gas
TYPE	Pump version: PU 2160 F
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



Interconnect hoses (18) and (17) between the pump and the AIRMIX® gun :

- ♦ The hose (18) should be static proof (green band). I.D. 7 mm / 9/32".
- ♦ The hose (17) should be an AIRMIX® one. I.D. 4,8 mm / 3/16" or 6,5 mm / 1/4".

Connect the pump air supply to the compressed air system with an hose - I.D. 10 mm / 3/8".

Nota : these hoses are not included in the equipment.

Choose an AIRMIX® nozzle (size from 04 to 09 - refer to chart of nozzles in the gun instruction manual) and install it on the gun (19).



The PU 2160F pump is fitted with an earth cable. Ground the pump.

Fill with 'T' lubricant or with the appropriate lubricant the BASE fluid section flange. Fill the cup to the 3/4.

Unscrew the 2 air regulators (8 & 9), then supply the equipment with air (maximum P = 6 bar / 87 psi, clean air).



→ **Do not install isolating valve on the CATA supply system** (between the tank and the FLOWMAX® fluid section). **It will damage the bellows.**

→ Do not install a system that will act as a non return valve.

→ You **must not** create an **overpressure** in the CATA system.

7. OPERATING

■ LABEL

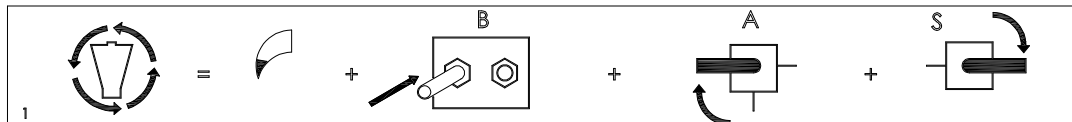
The label stucked on the pump explains the 3 operating stages of the pump : PRIMING - WORKING - FLUSHING.

The 3 operating stages are selected :

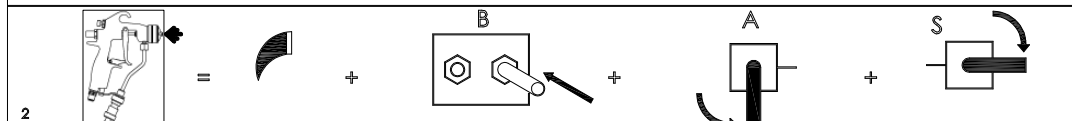
- working the manifold valve (11) (→ index A on the label),
- operating one of the valves of the color changer (12) (→ index B on the label),
- working the valve (20) located at the base and solvent suction (→ index S on the label).

Stages :

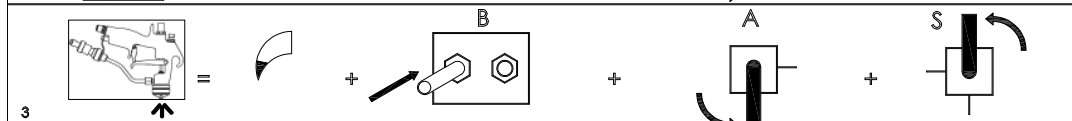
1 - Priming



2 - Working



3 - Partial flushing



The label indicates also the air pressure adjustment on the motor of the pump.



: Low pressure



: Higher pressure

■ FIRST STAR UP



CAUTION : This pump has been checked and tested with water in our factory.

During the first start up, a flushing of the circuits with solvent is required to ensure a good operating of this pump.

Be certain the gun trigger is released and hoses are properly interconnected.

Insert BASE drain rod and CATA hose into waste containers.

Insert suction rod of BASE fluid section into SOLVENT container.

Fill up with SOLVENT the CATALYST container.

Be certain the manifold hand levers are in the PRIMING position.

Adjust the red regulator 'Air motor' (9) between 0.5 and 2 bar / 7 and 29 psi.

Both components must flow freely from BASE drain rod and CATA hose into waste containers.

Once drained the circuits, insert the drain rod into the solvent container and the CATALYST hose into the other container. Make the materials circulate until air bubbles are evacuated.

Unscrew the air regulator (9), then empty the solvent of the CATA container.

Prepare the materials :

- ♦ Fill up a container with Material A (BASE),
- ♦ Fill up the pump container (Maximum 10 liters / 2.6 US gal) with material B (CATALYST),
- ♦ Fill up a container with Flushing Solvent S.

Insert BASE suction rod (Ø 16) into BASE container and the 'BASE' rod into a waste container.

Insert SOLVENT rod into solvent container.

Insert 'CATA' hose into a waste container.

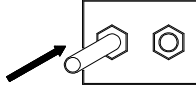
PRIME (Stage 1) to evacuate solvent into fluid sections, then insert BASE drain rod into BASE container and CATA hose into CATA container.

■ MATERIAL PRIMING (STAGE 1)

Move the valve (20) hand lever to supply the pump with material A (BASE).

Move the valve (11) hand lever horizontally.

Connect the air tube on the hole on the far left of the plate (⇒ opening of the CTM valve to the container B).

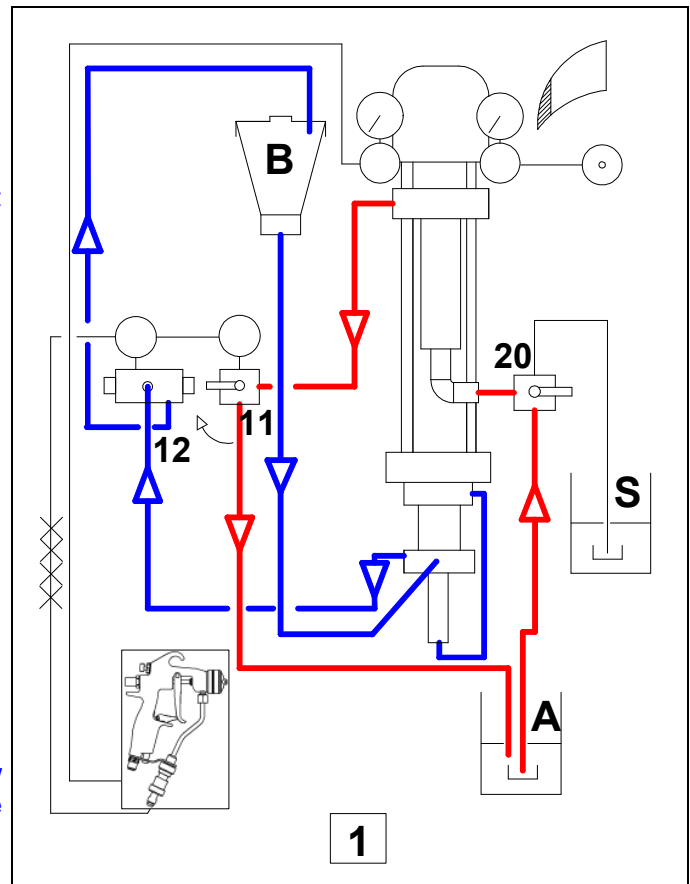


Screw the red regulator until pump begins to start up (pressure : from 1 to 2 bar / from 14.5 to 29 psi).

The base A is drawn then delivered by the BASE fluid section. It passes through the valve (11) of the manifold and goes back to the container A.

The catalyst flows from container B, is drawn by the CATA fluid section. It passes through the valve (12) of the manifold and goes back to the container B.

Leave the materials circulate for a few minutes. When air bubbles are evacuated, the priming is over.

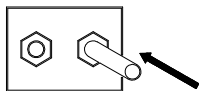


■ WORKING (STAGE 2)

Leave the valve (20) hand lever in the same position (the pump must be supplied with materials A and B).

Position the valve (11) hand lever vertically.

Connect the air tube on the hole on the far right of the plate (⇒ opening of the CTM valve towards the AR valve).



Screw the red regulator 'Pump pressure' until the pump begins to start up.

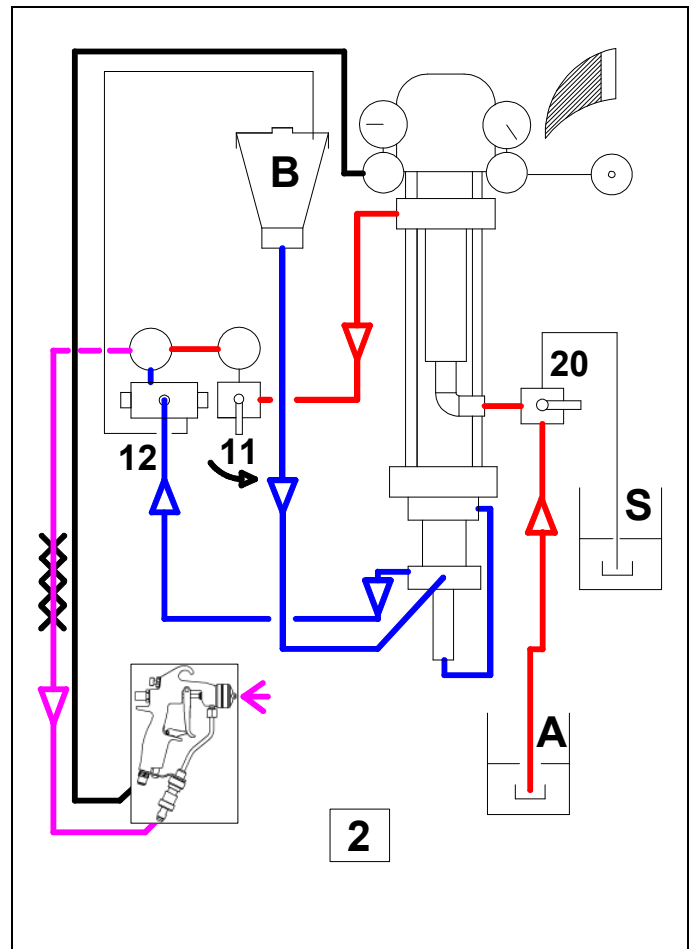
The base A and the cata B are drawn then delivered by their respective fluid section. Each material comes to the manifold and is mixed at the outlet in the mixer.

Point and trigger the gun into a waste receptacle.

When material flows out regularly, screw the grey regulator "Spraying air".

Adjust the 2 regulators to get a correct fan :

- adjust the material pressure with the red regulator,
- adjust the spraying air with the grey regulator.



■ PARTIAL FLUSHING (STAGE 3)

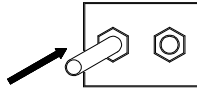
If the working shutdown lasts longer than the material "working life", carry out a PARTIAL flushing.

The FLUSHING stage enables to flush the BASE circuit and the mixed material.

Move the valve (20) hand lever to supply the BASE fluid section with solvent.

Position the valve (11) hand lever vertically.

Connect the air tube on the hole on the far left of the plate (opening of the CTM valve towards the container B ⇒ circulation of the catalyst).



Screw the red regulator 'Pump Pressure' until pump begins to start (pressure : from 1 to 2 bar / from 14.5 to 29 psi).

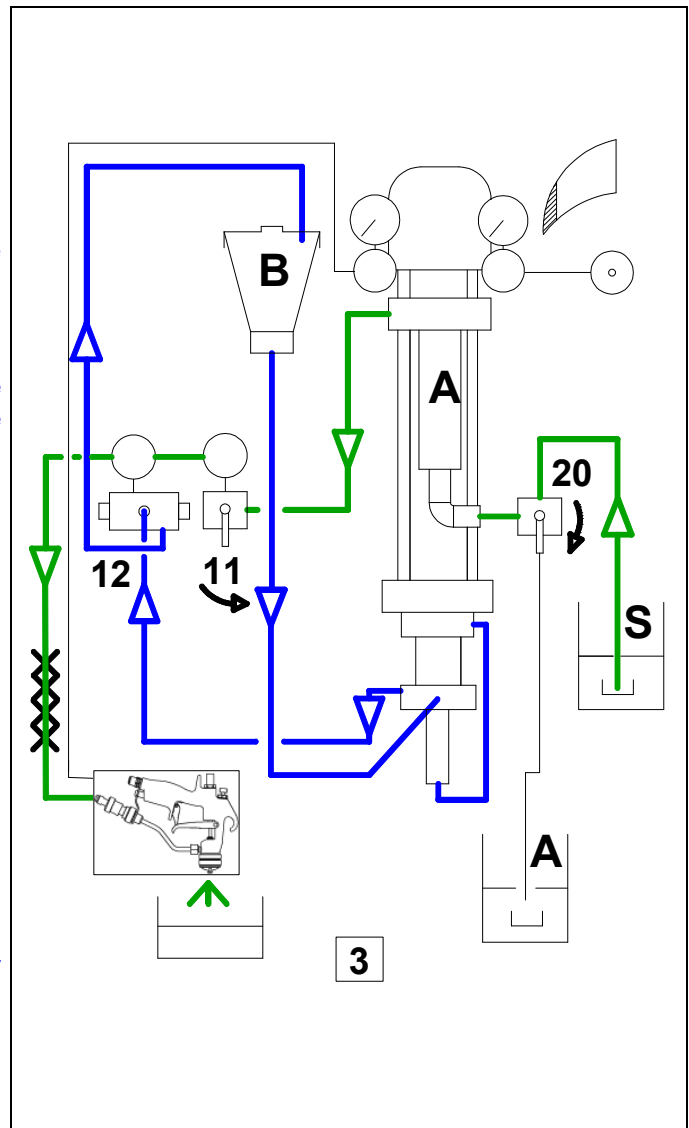
The solvent S and the cata B are drawn and delivered via their respective fluid section. Each material comes to the manifold valves : the CATA is sent to the container, the solvent passes through the manifold, the mixer and comes to the gun.

Remove aircap and tip from the gun and clean them carefully.

Point and trigger the gun into a waster receptacle.

When clean solvent flows out, the circuit is flushed.

Leave the equipment until a next utilization



8. 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.
Sags, runs	Too much material	Use the next higher nozzle size.
		Decrease the material pressure using red knob.
	Distorted spray fan	Spray faster or farther from part being painted.
		Use the next smaller size.
		Refer to gun instruction manual

9. CHANGING MIX RATIO

The PU 2160 features a fixed ratio proportioning system (ratio : 1/1, 2/1, 10/1 according to the choice of the CATA fluid section).

To change the ratio, the CATALYST fluid section must be changed with a fluid section of a different ratio (refer to PU 2160F spare parts' list).

10. SHUTDOWN AT THE END OF WORK

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

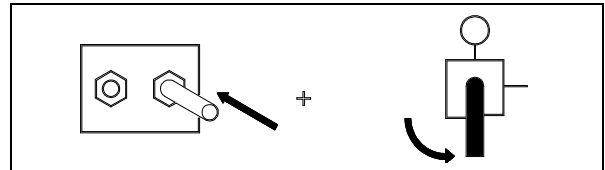
Carry out a partial flushing (refer to § 7).

Empty the CATALYST container - replace CATALYST with CLEAN solvent.

Insert SOLVENT suction rod into a container of CLEAN solvent.

Place the valve (11) hand lever vertically.

Connect the air tube in spiral on the far right of the plate (⇒ opening of the CTM valve towards the AR valve).



Adjust the red regulator (9) to 2 or 3 bar / 29 or 43.5 psi.

Point the gun into a waste container and make the fluid flow out until you get solvent.

Remove the aircap and the nozzle and clean them.

Remove and clean the mixer (15).

Remove and clean the CATA tank screen after having emptied the tank content.

➤ To get a perfect flushing, repeat that procedure twice using some CLEAN solvent.

Reinstall the aircap and the nozzle onto the gun.

Shut off the main air supply.

Leave the pump filled with clean solvent.

11. DAILY CARE

■ SPRAY GUN

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

■ PUMP

Make sure the wetting cup of the BASE fluid section is filled up with T lubricant. Fill if necessary (level : 3/4 of the cup).

Regularly change the lubricant (this lubricant will normally be coloured by the paint). Make sure the wetting cup is clean and regularly clean it with solvent after having drained the lubricant.

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

Check the hoses.

Flush the pump as often as necessary.

Never inject oil into the compressed air supply.

The CATALYST tank is fitted with a screen. Clean that screen regularly or change it, if necessary (filtration size : 50 MESH)

When stopping the pump, always leave it filled up with material.

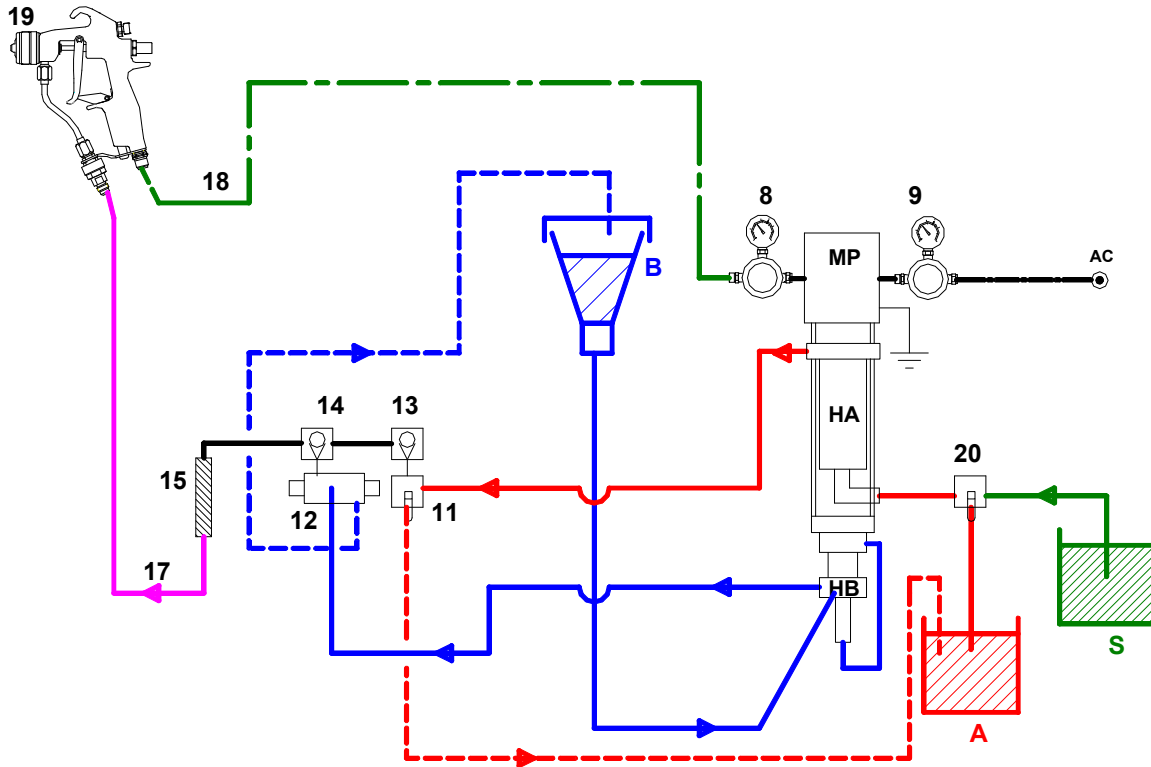
For a short duration, if the flushing has not been carried out, leave the pump filled up with material.

For a long duration, after flushing the pump, leave it filled up with solvent.

Before cleaning or removing a component of the equipment, you must :

- 1 - stop the pump compressed air supply,
- 2 - place the manifold valves in 'circulation' position,
- 3 - trigger the gun to depressurize the hoses.

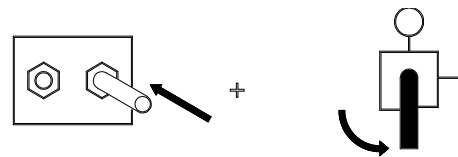
12. TROUBLESHOOTINGS



■ THE PUMP DOES NOT OPERATE

Check :

- ◆ It is supplied with air,
- ◆ The valves (11 & 12) are in 'WORK' position,
- ◆ The gauge (9) indicates a pressure between 2 and 6 bar / 29 to 87 psi,
- ◆ The mixer (15) and the hose (17) are not clogged,
- ◆ The mixer (15) and the hose (17) are not clogged,
- ◆ The gun filter, if there is one, is not clogged,
- ◆ The gun nozzle is not clogged.



■ RATIO CHECKING

From time to time, you must check the ratio :

- 1 - The CATALYST container is translucent. Mark on the CATALYST level, then add a CATALYST volume (for example 1 liter / 0.26 US gal),
- 2 - Determine the volume of the BASE,
- 3 - Operate the pump until the volume of catalyst falls to its initial level,
- 4 - Determine the volume of BASE used. In this case, the ratio is :

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

* Nota : The reading of the proportioning ratio is highly sensitive to the viscosity of the materials.

13. DISASSEMBLY



WARNING !

Before any intervention on the pump :

- shut off the compressed air supply,
- place the manifold valves in 'circulation' position,
- trigger the gun to depressurize the circuits,
- empty the CATALYST container.

BASE FLUID SECTION - HA (Refer to Doc. 573.332.050)

To disassemble the **BASE** fluid section (HA), remove the lower part of the pump [the **CATALYST** fluid section (HB) and the suction kit (11)] removing the nuts (6), the tie-rods (4) and the fixing plate (9).

■ SUCTION VALVE

Unscrew the suction valve body (19).

The ball (22) is secured on the seat (20) by means of a stop ring (23).

Reinstall the suction valve assembly and change the seal (21).

■ EXHAUST VALVE

Unscrew the cylinder (17).

Unscrew the seat (26) by holding valve support (29) to remove ball (27).

Check if cup seal is not damaged (28), change it if necessary.

Reinstall the parts in the reverse order and tighten the seat (26) completely on the valve support (29). Change cylinder seal (18).

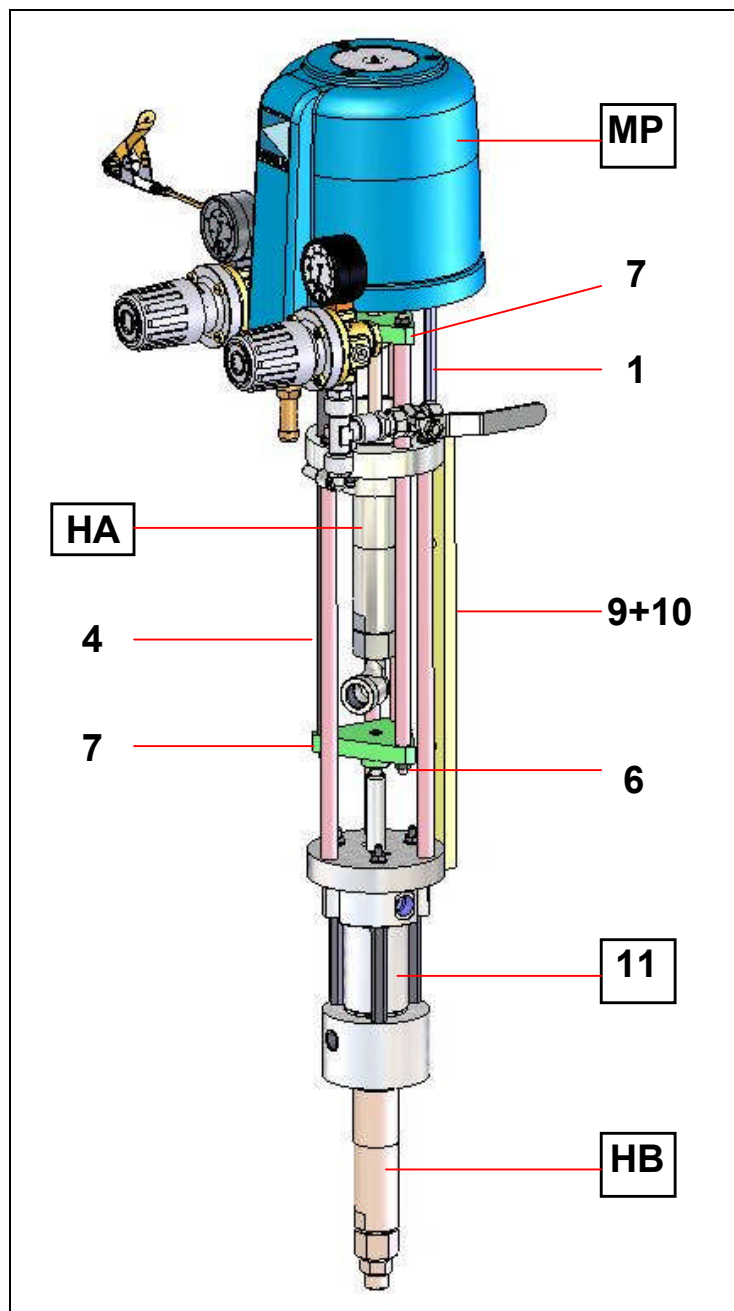
■ CARTRIDGE

To separate **BASE** fluid section from air motor, remove tie-rods (1), pin (3) and connecting pin (2).

Remove circlips (13) located in the fluid section flange (32) and pull cartridge (14) downwards to remove it.

Install a new cartridge (12).

Reinstall in the reverse order. Be careful not to damage the seal when inserting piston-rod (30) into cartridge (14).



CATALYST FLUID SECTION - HB (Refer to Doc. 573.332.050) - Ratio 1/1 & 2/1

- **SUCTION VALVE** (Refer to BASE fluid section - suction valve)
- **EXHAUST VALVE** (Refer to BASE fluid section - exhaust valve)
- **CARTRIDGE**

Pull on the cartridge (48) by means of a hook to remove it from the flange (44) of the suction kit.
Install a new assembly. Lubricate the seal (50).

Slide the cartridge (48) on the piston rod (46) and insert it in its housing until the stop.

Be careful not to damage the inner seal when inserting piston-rod into cartridge.

CATALYST FLUID SECTION - HB (Refer to Doc. 573.332.050) - Ratio 5/1 & 10/1

■ **SUCTION VALVE**

Unscrew suction valve body (58).

The ball (61) is secured on the seat (59) by means of a circlips (62).

Reinstall suction valve assembly and change the seal (60).

■ **NON-RETURN VALVE**

Unscrew the valve (71) by holding support (68) to remove ball (69).

Check if valve seal (70) is not damaged. Change it if necessary.

Reinstall in the reverse order. Be certain valve (71) is fully screwed on the valve support (68).

■ **CARTRIDGE**

Pull on the cartridge (52) by means of a hook to remove it from the flange (44) of the suction kit.

Install a new assembly. Lubricate the seal (54).

Slide the cartridge (52) on the piston rod (65) and insert it in its housing until the stop.

Be careful not to damage the inner seal when inserting piston rod into cartridge.

SUCTION KIT (Refer to Doc. 573.332.050) (Ind. 11)

■ **BELLOWS**

Disassembly :

Disassemble the whole (HB & 11) from the rest of the pump unscrewing the nuts (6) of the tie-rods (4) and removing the axis (2) and the pin (3) at flange level (7).

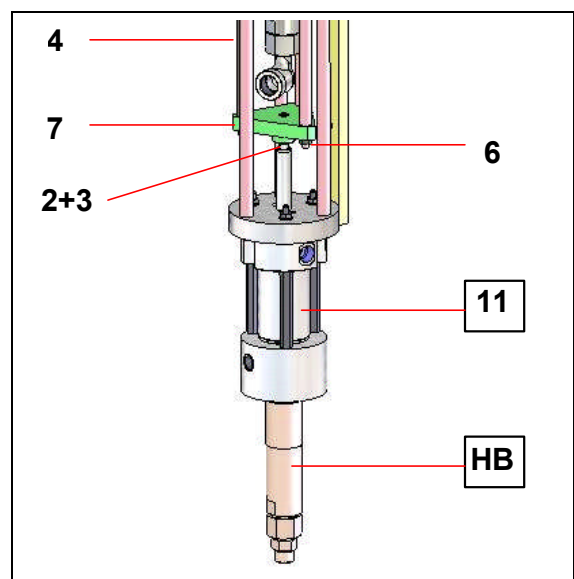
Remove the cylinder and the exhaust valve from the CATA fluid section.

On the suction kit (11) :

Take off the nuts (45) and the flange (39).

Pull the suction bearing upwards. The bellows (35), the skirt (36), the coupling rod (37) and the CATA piston rod (46 or 65 depending on the version) are drawn in by the suction bearing.

Take off the ring (41) located on the flange (39).



Remove the cylinder (43).

Disassemble the CATA piston rod (46 or 65) from the coupling rod (37).

Push on the cartridge of the CATA fluid section (48 or 52, depending on the version) to take it off the flange (44).

Assembly :

Grease the seals and the ring (40 & 41) before any installation.

Install new seals (40) into fluid flange (44) and into the suction bearing (38).

Install the ring (41) into the flange (39). Make it strain to insert it in its housing.

Install the cylinder (43) into the flange (44) until to stop (overcome the stiffness of the seal (40) without damaging it).

Slide the coupling rod (37) into the bellows (35) fitted with the skirt (36).

Associate the coupling rod (37) and the CATA piston rod (46 or 65) after the application of glue (low strength - Aneorobic adhesive - Loctite 222). Screw the 2 rods together (insert a metal rod on the holes located at each end and tighten).

Locate the bellows and the rods in the suction bearing (38).

Locate the whole on the tie-rods (42) as well as the flange (39).

Install the nuts (45).



Tighten them manually to get a play between the parts.

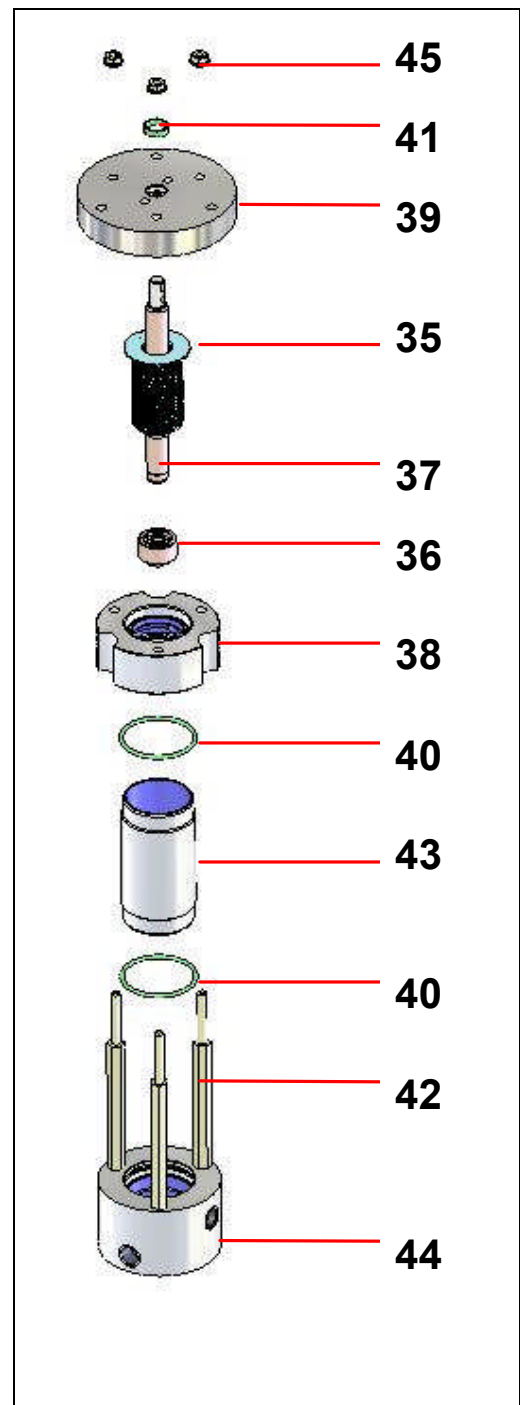
Mount the coupling rod (37) on the upper part of the pump by means of the axis (2) and the pin (3) - consult drawing of the previous page.



If necessary, orientate the coupling rod (37) with care in order not to damage the bellows (35). It is possible when the nuts (45) are not too tightened.

When the parts are installed, tighten the nuts (45) with a wrench # 10.

Install a new cartridge (48 or 52) before mounting the CATA fluid section.



MOTOR (Refer to Doc. 573.272.050)

■ MOTOR VALVE

Disassemble hood (23) by removing the 3 screws (24).

Remove cover (19) by unscrewing the 4 screws (21).

Unscrew motor valve (15) by holding driving-rod (9).

Install the new motor valve (15) and block it on the driving-rod (9) thanks to the two flat parts located at its end.

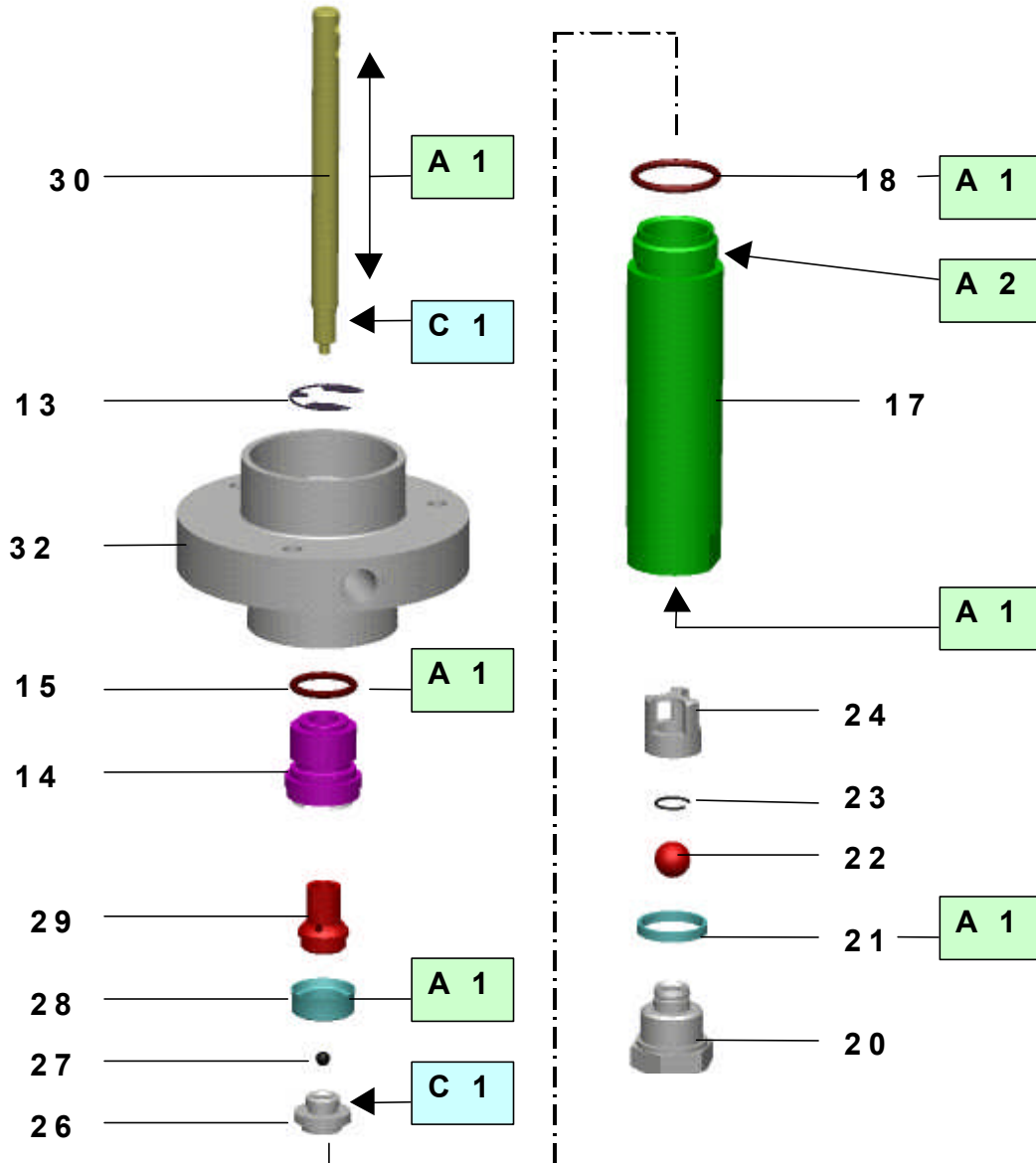
Reinstall cover (19) with its 4 screws (21).

Reinstall hood (23) with its 3 screws (24).

Before reassembling the different components :

- Clean the parts with the appropriate cleaning solvent.
- Install new seals if it is necessary after having lubricated them with PTFE grease.
- Install new parts if necessary

14. ASSEMBLY INSTRUCTIONS



The above drawing represents the BASE fluid section. Transfer the same indications to the CATA fluid sections.

Index	Instruction	Description	Part number
A1	PTFE grease	TECHNILUB" grease (10 ml)	560.440.101
A2	Graphite grease	Graphite grease box (1kg)	560.420.005
C1	Medium strength Anaerobic Pipe sealant	Loctite 577	