



**INSTRUCTION MANUAL**

**SHOVEL FLUID SECTIONS  
- 'TENOR'**

**910 cc / 30.7 oz with cartridge**

**# 106 206 11 06**

**# 106 206 11 10**

**Manual : 574.302.112 - 0704**

***Date : 16/04/07 - Supersede : Doc. 574.217.112***

***Modif.: 998 822 012 → 106 206 11 06***



**IMPORTANT : Read and understand all instructions before storing, installing and operating concerned equipment (professional use only).**

*PICTURES AND DRAWINGS ARE NOT CONTRACTUAL. THE MATERIAL MAY BE CHANGED WITHOUT PRIOR NOTICE.*

**KREMLIN REXSON – Site de Stains : 150, avenue de Stalingrad  
93 245 - STAINS CEDEX - FRANCE  
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Dear Customer, You are the owner of our new equipment and we would like to take this opportunity to thank you.

To make sure your investment will provide full satisfaction, special care has been taken by KREMLIN REXSON during all designing and manufacturing processes.

To obtain 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 instructions and precautions stated in this manual could reduce the equipment working life, result in operating trouble and create unsafe conditions.

## 1. INCORPORATION DECLARATION

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 :

<i>Description</i>	<i>SHOVEL FLUID SECTION - 'TENOR'</i>
<i>Equipment number</i>	<i>106 206 11 xx</i>
<i>Trademark</i>	<i>KREMLIN REXSON</i>

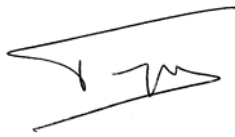
is declared in conformity with the :

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

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

**The sub-assembly could not be placed into operation before declaring the machine in which it will be incorporated in conformity with the Machinery Directive (Directive 98/37/EEC).**

Established in Stains, on February 1<sup>st</sup> 2007



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 supplied must be regularly inspected. Defective or worn parts must be replaced.

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

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 GLOVE IS OBLIGATORY	PRODUCT VAPOR HAZARDS	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 material 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.



## 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).





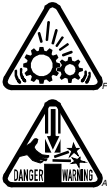
### CAUTION!

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. Where 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.

## 4. INSTALLATION

### ■ HANDLING




The fluid sections with important weight and dimensions must be handled with the appropriate means.


### ■ STORAGE

Place the equipment safe from dampness after having closed the different air inlets and ports (plugs).

### ■ DESCRIPTION OF THE LABEL MARKING

Marking in accordance with the ATEX directive

	MOTEUR / MOTOR	POMPE / PUMP	MOTO-POMPE / MOTOR-PUMP
REF / SERIE	<input type="text"/>	<input type="text"/>	<input type="text"/>
○ Max.pres.( bar/psi )	<input type="text"/>	<input type="text"/>	<input type="text"/>
	<input type="text"/>		<input type="text"/>
KREMLIN	KREMLIN REXSON France	REXSON	RATIO
			

<b>KREMLIN REXSON FRANCE</b>	Name and address of the manufacturer
<b>MOTEUR / MOTOR</b>	-
<b>POMPE / PUMP</b>	Motor part number and serial number
<b>MOTO-POMPE / MOTOR-PUMP</b>	-
	<p><b>II</b> : group II    <b>2</b> : class 2            Surface equipment meant to area where explosive atmospheres due to gas, vapours, mists or air mixtures with dusts are liable to appear from time to time in usual operating.  <b>G</b> : gas</p>



**Associated to a pneumatic motor, the fluid sections must be grounded via the earth cable of that motor.**

**The earth cable must be grounded to a safe earth.**

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

### ■ CONNECTION OF THE SUBSETS

These fluid sections are designed for the coupling of pneumatic or hydraulic motors with similar stroke.

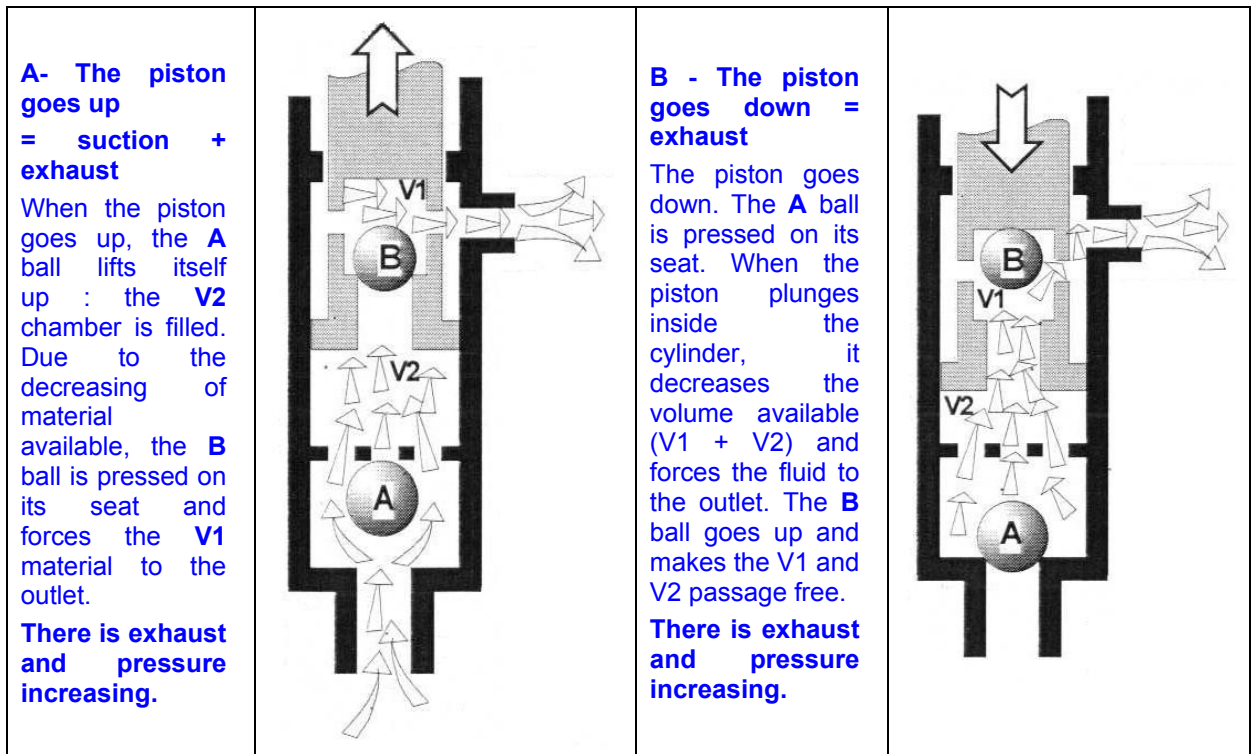
**You must conform to a motor/fluid section association as planned by KREMLIN REXSON.**

## 5. OPERATING

### ■ EXPECTED USE

These pumps coupled with pneumatic or hydraulic motors are designed for the transfer, the pouring off or the spraying of different liquid or viscous fluids with a requested outlet flow and pressure.

### ■ OPERATING DESCRIPTION



### WARNING!

The frictions due to the displacement of fluid inside the pumps and accessories, as well as the one created by the tightness seals, generate static electricity that may cause fire or explosion. This is why the fluid section must be grounded (refer to the instruction manual of the motor for its grounding).

## 6. USE



**Protective clothing (gloves, protective masks, glasses, protective clothing,...) should be worn to comply with the recommendations.**

**The working area must be correctly ventilated.**



## ■ ADJUSTMENTS

Before starting the equipment, half fill the cup with T lubricant.

The cup nut must be slightly tightened. A too important tightening would damage the cup seals. A wrench is supplied to allow a correct tightening.

### Tightening of the wetting cup

- Fill the cup with T lubricant,
- Start the pump, then tighten the cup after 10 minutes, then one hour and then one day of operating,
- If you notice a leakage, the cup must be tightened.

### Tightening instructions :

- Depressurize the motor (refer to pressure relief instructions),
- Depressurize the fluid circuit (refer to pressure relief instructions),
- Tighten the cup, clean it and fill it with T lubricant,
- Close the pump drain circuits,
- Open the motor air valve.

## ■ START UP

The pumps are tested in our workshop with lubricant.

Before starting up, you must flush the pump with the appropriate solvent.

At the end of the working day, carry out a flushing with the appropriate solvent. We advice you to stop the pump in the "low position" to prevent material spreading on the piston rod.

## ■ TROUBLESHOOTINGS



**Before any intervention on the pump, please carry out the release pressure and drain general instructions.**

To prevent from injuries, material injections, injuries due to moving parts or sparks during the stopping of the system, the assembly, the cleaning or changing of the nozzle, **you must follow the stages hereafter** before intervening :


- Close the guns,
- Shut off the air inlet using the pressure release to evacuate the residual air.
- Move the gun near to a metallic drum to get back the fluid. Keep it against the drum to maintain the grounding (if necessary use a wire to ground the metallic drum).
- Open the gun to drain the circuit.
- Open the drain valve of the pump and get back the fluid in a metallic drum correctly grounded.
- Let the drain valve open during the intervention.

**Check the conformity of cabling before intervening.**

DEFECTS	CAUSES	SOLUTIONS
Leakage at the cup seals	Insufficient tightening of the cup. Bad mounting of the seals Damaged or worn seals. Bad choice of the seals' material	Screw the cup. Check the mounting Replace them. Check the compatibility.
The cup seals get rapidly damaged	No lubricant in the cup (pumped product drying on the piston rod).  Compatibility product / seals.	Clean, replace parts if necessary. During a long duration shutdown, stop the pump, the piston is in the the low position.  Check.
The pump is stopped	The fluid is polymerized, hardened, dried in the pump. The cup nut is too tightened. Broken part(s) in the pump.	Clean the pump; change parts if necessary.  Unscrew. Remove, check and replace.
The motor seems to operate but the pump does not deliver product	Internal parts of the motor defective. Defective coupling.	Check the operating of the motor. Check coupling.
The pump operates but irregular flow	Valve clogged on the seat, incorrectly mounted or worn. Air inlet in the suction circuit.	Check mounting, state of the parts, tightening of parts and seals.
At stop, pump piston carries on going down	Valve worn or incorrectly mounted Plug or drain valve not tightened	Check and replace parts.
At stop, pump piston carries on going up	Head piston seals or upper valve worn or incorrectly mounted. Plug or drain valve not tightened	Check and replace parts.
The piston is going down quickly (simple effect working)	Bad feeding of the pump.  Product is too viscous. Lower valve worn. A foreign product obstructs the lower valve.	Check use parameters of the accessories (pressure on follower plate or suction rod,...). Accessories can be not adapted or clogged. Bad definition of the pump. Check and replace parts. Clean and check.
The piston goes up quickly	Valve worn or damaged. A foreign product obstructs the upper valve.	Check and replace parts. Clean and check.
The piston goes out and down at different speeds	Valve, head piston seals or cylinder worn. Seals incorrectly mounted or damaged	Replace parts.  Check the mounting; change if necessary.

DEFECTS	CAUSES	SOLUTIONS
The pump does not deliver enough pressure	Insufficient air pressure to the motor (valve insufficiently open, air leak,...) Insufficient air inlet on the motor or outlet clogged.(hose not adapted) Cup or head piston seals too tightened.	Check; adjust. Check filter, mounting, hose not adapted. Check mounting or loosen cup nut.
Abnormal operating after racing or too important temperature.	Head piston or cup seals too tightened, damaged. Product drum empty.	Check mounting; reduce pumping rhythm. Replace parts if necessary. Fill the drum; check the suction circuit and possible air leakage.
Fluid leakage coming from the pump body	Cylinder incorrectly tightened No seals or seals damaged	Check and change the parts if necessary.

## 7. MAINTENANCE

	<p><b>WARNING!</b></p> <p><b>Before any intervention, please follow the pressure release instructions and read carefully the safety instructions.</b></p> <p><b>During a long duration shutdown, stop the pump when the piston is in low position.</b></p>
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### ■ PREVENTIVE MAINTENANCE

#### Daily care :

Check if there are leaks. Check that the hoses are in good conditions.

Keep the piston of the pumps clean to prevent from material drying.

Check the lubricant level inside the shell (keep the level halfway up). Fill it if necessary. The lubricant will normally be coloured by the material.

Tighten moderately if necessary the cup nut with the wrench provided.

Check the tightening of the different parts.

If the pump is fitted with a follower plate : check that the plate seal is in good condition, clean top and bottom parts of the follower plate.

Manipulate (open and close) all the valves of the installation.

Keep the spray area clean.

#### Bimonthly care :

If the lubricant is excessively coloured in the cup, fill the cup with new lubricant. Leave the cup clean and clean it regularly with lubricant after having drained the lubricant.

### ■ CURATIVE MAINTENANCE

We advice you to schedule a systematic maintenance after a given working time. The rhythm is defined by the maintenance staff of the user and is done according to the product, the rate of work and the regular using pressure.

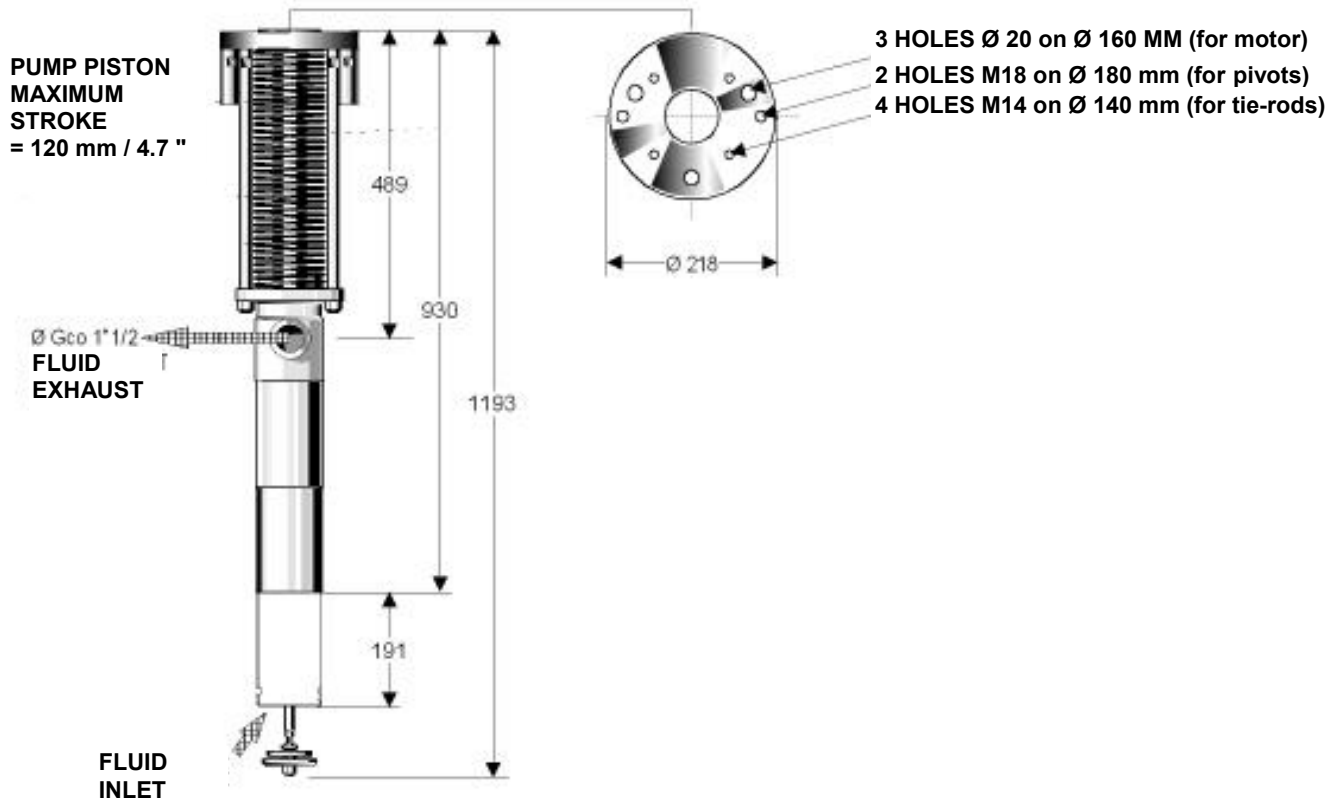
#### Before intervening on the pump :

- Clean the parts with the appropriate cleaning solvent,
- Install new seals if necessary after having lubricated them,
- Lubricate the piston and the inside of the cylinder to prevent from damaging the seals,
- Install new parts if necessary.

## 8. CODIFICATION OF THE SHOVEL FLUID SECTIONS 'TENOR'- 910 cc / 30.7 oz

# Fluid sections	Associated motors		Description
	7200	9200	
	18/1	30/1	Pressure ratio
106 206 11 XX	X	X	Assembly of the follower plates

## 9. SPECIFICATIONS



Features of the fluid sections	# 106 206 11 06	# 106 206 11 10
Capacity	455 cc / 15.4 oz	
Delivery per cycle	910 cc / 30.7 oz	
Stroke	200 mm / 8"	
Fluid outlet connections	Gco 1"1/2	
Drain valve connections	Gco 1/4"	
Weight	44 kg / 13 lbs	
Maximum fluid temperature	80°C / 176°F	
Wetted parts	Steel, steel treated stainless steel, tungsten carbide, electro galvanized steel , PTFE	
Packings	Cup Piston head Shovel	PU / PE PTFE G PE / PTFE V
		PU / PE PE / PTFE V PE / PTFE V

## 10. DISASSEMBLY / ASSEMBLY



### Disassembly of the pump

- Unscrew the nuts (19) and put aside the flange (1), the tie rods (14) and the protection (4),
- Clamp the pump horizontally through the body with a vice (7),
- Unscrew the nut (35) and take off the shovel (34), the washer (33) and the spacer (32),
- Unscrew the tube (37) and take off the seal (36),
- Unscrew the valve body (21) and the outlet with the lower valve (28) and its seat (30),
- Remove the piston / shovel rod assembly,
- Unscrew the cylinder (10)

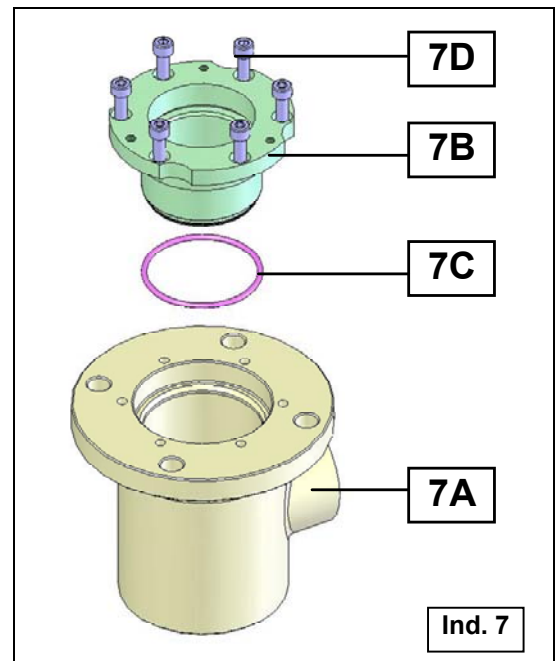
### Cup seals

*Nota : the pump body (7) consists of a cartridge (7B) to make easier the changing of the seals.*

- Unscrew the cup (5),
- Take off the 6 screws (7D) that tighten the cartridge (7B) in the body (7A),
- Take off the cartridge (7B) screwing the extractors in the 3 M8 holes of the cartridge,
- Take off the washers (6 & 12) and the seals (11),
- Change the seals (11),

Reinstall the parts in the reverse order of the disassembly sequence.

Change the seal (7C).



### Lower valve

- Take off the seat (30) and the lower valve with the valve body (21),
- Unscrew the cup nut (24),
- Take off the male washer (25), the seals (26) and the female washer (27),
- Remove the seal (18),

Reinstall the parts in the reverse order of the disassembly sequence.

### Upper valve

- Take off the pin (23) and unscrew the shovel rod (31),
- Unscrew the piston valve (22),
- Unscrew the piston bush (20) and take off the piston nut (16), the male washer (44), the piston seals (45) and the female washer (46).

Reinstall the parts in the reverse order of the disassembly sequence.

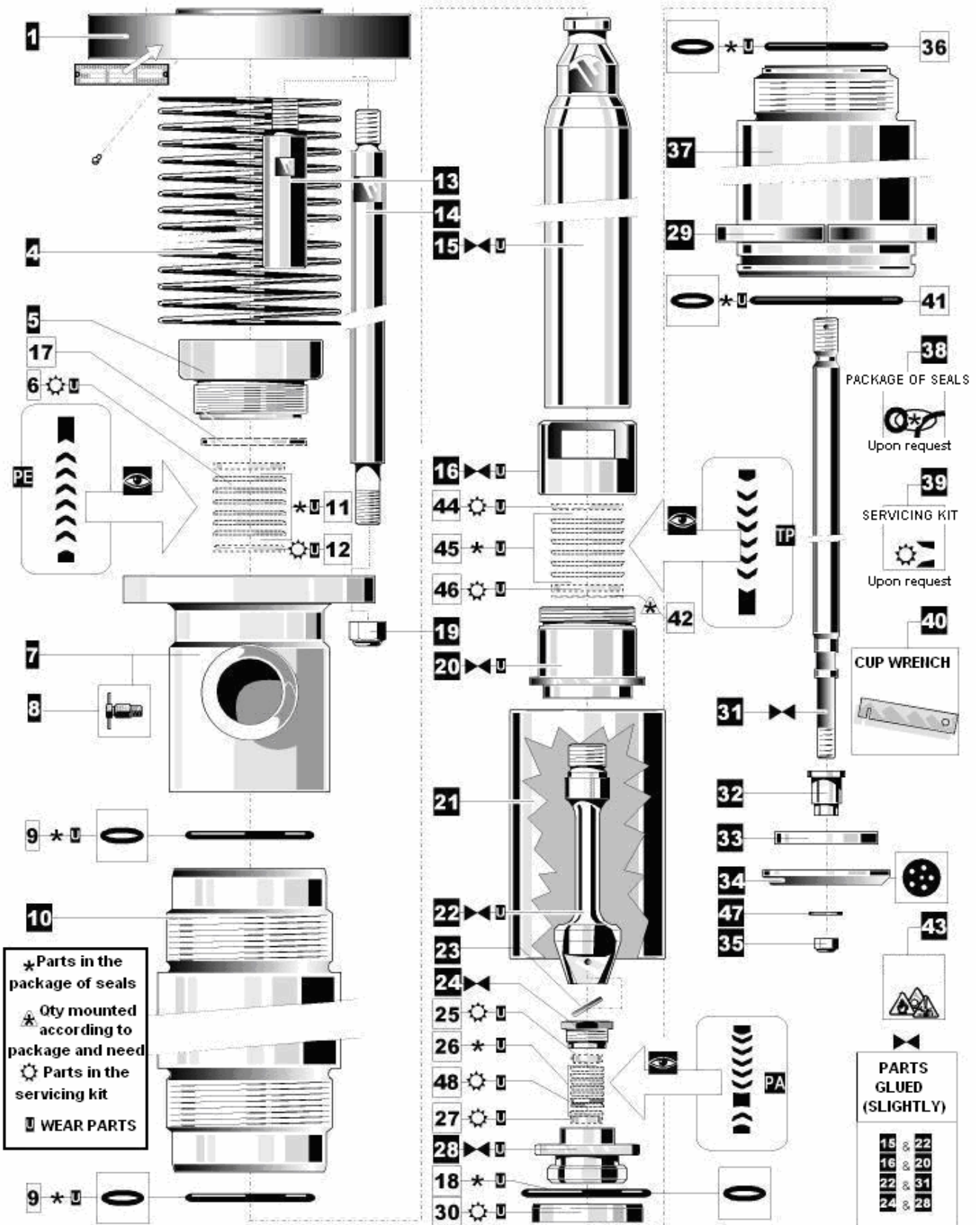
### **Complete assembly of the fluid section**

- Lubricate the cup seals and the piston seals,
- Locate the seals (9) inside the pump body (7), the valve body (21),
- Slide the piston rod (15) assembly inside the body (7), push it upwards,
- Screw the cylinder (10) to stop,
- Screw the shovel rod (31), screw the nut (23),
- Screw the valve body (21) on the cylinder (10) to stop,
- Slide the lower valve (28) on the shovel rod (31) and screw slightly the cup nut (24),
- Install the seal (18) in the valve body (21),
- Install the seat (30) and push it in its housing,
- Locate the seal (36) inside the valve body (21),
- Screw the filling tube (37) to stop,
- Locate the spacer (32), the washer (33) and the shovel (34) on the shovel rod (31),
- Screw the lock nut (35),
- Screw slightly the cup (5),
- Re assemble the pump to the motor according to the instructions of the pump instruction manual.

#### **Before intervening on the pump :**

- **Clean the parts with the appropriate cleaning solvent,**
- **Install new seals if necessary after having lubricated them,**
- **Lubricate the piston and the inside of the cylinder to prevent from damaging the seals,**
- **Install new parts if necessary.**

# 11. EXPLODED VIEW & SPARE PARTS' LIST



■ SPARE PARTS' LIST

Ind	Description	106 206 11 06	106 206 11 10	Qty
		#		
1	Flange	210 620		1
4	Protection	210 622		1
5	Cup	210 700		1
6	'F' washer	210 730		1
7	Pump body	210 701		1
7A	▪ Body	NSS		1
7B	▪ Cartridge	NSS		1
7C	▪ Seal	Refer to packages of seals		1
7D	▪ Screw, model CHc M 8x20	930 151 279		6
8	Drain valve	210 431		1
10	Cylinder	210 718		1
12	'M' washer	210 712		1
13	Pin	209 582		2
14	Tie-rod	210 687		4
15	Piston rod	210 719		1
16	Piston nut	210 716		1
19	Lock nut	88 339		4
20	Piston bush	210 715		1
21	Valve body	210 717		1
22	Piston valve	210 675		1
23	Cotter-pin	88 429		1
24	Cup nut	60 120		1
25	'M' washer	211 333		1
27	'F' washer	211 333		1
28	Lower valve	210 679		1
29	Flange	210 686		1
* 30	Seat	210 680		1
31	Shovel rod	210 692		1
32	Shovel spacer	210 682		1
33	Counter shovel	210 683		1
* 34	Shovel	210 684		1
35	Lock-nut	88 963		1
37	Filling tube	210 693		1
40	Cup wrench	209 942		1
44	'M' washer	210 731		1
46	'F' washer	210 713		1
47	Washer	88 550		1
48	Spacer	60 220		1
*	<b>Servicing kit</b> (Ind 6, 12, 25, 27, 30, 44, 48)	<b>106 364</b>		<b>1</b>
*	<b>Package of seals</b> (Ind. 7c, 9, 11, 17, 18, 26, 36, 41, 42, 45)	<b>107 230</b>	<b>107 301</b>	<b>1</b>

\* Preceding the index number denotes a suggested spare part. N S S : Denotes parts are not serviceable separately.



■ PACKAGE OF SEALS COMPOSITION

FLUID SECTION			# 106 206 11 06			# 106 206 11 10		
PACKAGES			06			10		
			# 107 230			# 107 301		
Ind.		Qty	#	Material	Qty	#	Material	
9	O-Ring	2	84 456	FPM	2	84 456	FPM	
11	Cup packing	5	84 395	PU	5	84 395	PU	
		1	210 722	PE	1	210 722	PE	
45	Piston packing	6	210 727	PTFE G	3	210 726	PE	
					3	211 318	PTFE V	
36	O-Ring	1	84 448	PTFE	1	84 448	PTFE	
26	Shovel seal	4	211 334	PE	4	211 334	PE	
		2	211 335	PTFE V	2	211 335	PTFE V	
41	O-Ring	1	84 457	FPM	1	84 457	FPM	
18	O-Ring	1	84 445	FPM	1	84 445	FPM	
17	Ring	1	210 724	STEEL	1	210 724	STEEL	
7C	Cartridge seal	1	909 420 265	FPM	1	909 420 265	FPM	



	STEEL	→	□	SST	→	□
	PU	→	^	PU	→	^
	PU	→	^	PU	→	^
	PU	→	^	PU	→	^
	PU	→	^	PU	→	^
	PU	→	^	PU	→	^
	PE	→	^	PE	→	^
	PTFE G	→	v	PE	→	v
	PTFE G	→	v	PTFE V	→	v
	PTFE G	→	v	PE	→	v
	PTFE G	→	v	PTFE V	→	v
	PTFE G	→	v	PE	→	v
	PTFE G	→	v	PTFE V	→	v
	PE	→	v	PE	→	v
	PTFE V	→	v	PTFE V	→	v
	PE	→	v	PE	→	v
	PTFE V	→	v	PTFE V	→	v
	PE	→	v	PE	→	v
	PE	→	^	PE	→	^

PTFE G = Graphited PTFE  
 PTFE V = PTFE glass charged