



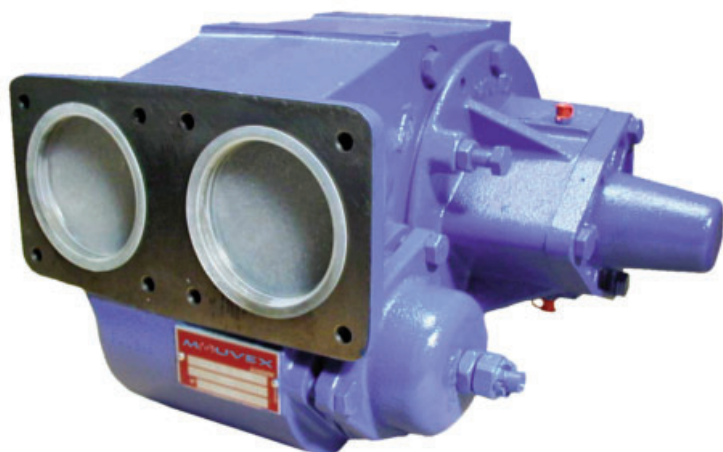
INSTRUCTIONS 1010-E00 e

Section	1010
Effective	March 2024
Replaces	May 2020

Original instructions

CC8-50 AP pumps

Construction A with pushrods



INSTALLATION

OPERATION

MAINTENANCE

EC CERTIFICATE OF CONFORMITY :

The EC Certificate of Conformity (paper version) is systematically attached to the equipment when shipped.

WARRANTY :

CC8 Series pumps are covered 24 months by warranty within the limits mentioned in our General Sales Conditions. In case of a use other than that mentioned in the Instructions manual, and without preliminary agreement of MOUVEX, warranty will be canceled.



Z.I. La Plaine des Isles - F 89000 AUXERRE - FRANCE
Tel. : +33 (0)3.86.49.86.30 - Fax : +33 (0)3.86.49.87.17
contact.mouvex@psgdover.com - www.mouvex.com

Your distributor :

TANK TRUCK PUMP

SAFETY, STORAGE, INSTALLATION AND MAINTENANCE INSTRUCTIONS

MODEL : CC8-50 AP

Definition of safety symbols



This is a SAFETY ALERT SYMBOL.

When you see this symbol on the product, or in the manual, look for one of the following signal words and be alert to the potential for personal injury, death or major property damage.



Warns of hazards that WILL cause serious personal injury, death or major property damage.



Warns of hazards that CAN cause serious personal injury, death or major property damage.



Warns of hazards that CAN cause personal injury or property damage.

NOTICE

Indicates special instructions which are very important and must be followed.

REMARKS :

CC8 pumps MUST be installed in systems designed by qualified personnel. The installation MUST be in compliance with local standards, national regulations and rules of safety.

This manual is designed to permit installation and commissioning of CC8 pumps and MUST accompany the pump.

Maintenance of CC8 pumps must ONLY be carried out by qualified technicians. This maintenance must meet local and national standards as well as all safety regulations. Read this manual, including all instructions and warnings, in full BEFORE any use of CC8 pumps.

Do not remove the warning and use label stickers that are found on the CC8 pumps.

NOTE :

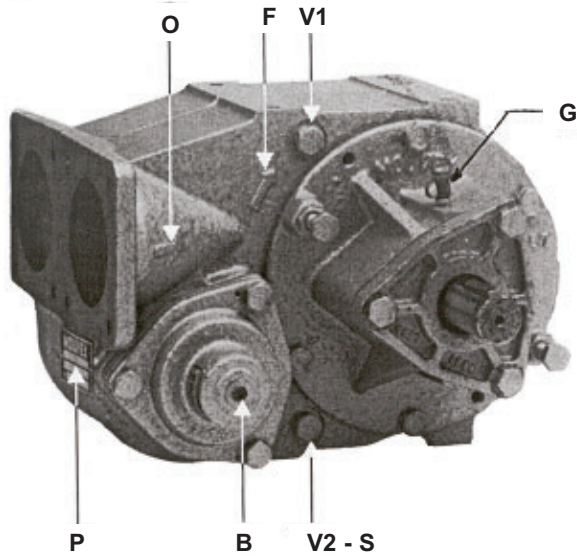
The numbers after part names correspond to items in the spare parts lists.

TABLE OF CONTENTS

Page

1. PRESENTATION	3
2. OPERATING LIMITS	3
3. OVERALL DIMENSIONS	4
4. INSTALLATION	6
4.1 Choice of pump	6
4.2 Direction of rotation	6
4.3 Pump protection	6
4.4 Pipe diameter	6
4.5 Piping assembly	6
4.6 Bypass setting	7
5. DIRECT DRIVE BY MOTOR	8
5.1 Installation of units	8
5.2 Alignment of motor/pump and reduction gearbox/pump shafts	8
5.3 Electric motors	9
5.4 Diesel engines drive	9
6. DRIVE BY POWER TAKE OFF	9
7. USE	10
7.1 Pumping hot liquids	10
7.2 Pump full of liquid when stopped	10
7.3 Starting-up the pump	10
7.4 Running without liquid in the pump	10
7.5 Using of the pump with a valve closed on the discharge line	10
7.6 Shutting down the pump	10
7.7 Protection from frost	11
7.8 Restarting	11
8. NECESSARY TOOLS	12
9. DISMANTLING - REASSEMBLY	12
9.1 Dismantling on side opposite to drive system	13
9.2 Dismantling on drive side	13
9.3 Reassembly of the pump	14
9.4 Assembly of flange for hydraulic trunk	14
10. CHANGING THE VANES	14
11. INSPECTION OF THE PUSHRODS	15
12. REASSEMBLY OF THE VANES AND THE PUSHRODS	15
13. CHANGING MONOBLOC SHAFT SEAL	16
14. BYPASS	16
15. MAINTENANCE	17
15.1 Lubrication	17
15.2 Inspection of the vanes	17
15.3 Cleaning the filter	17
16. TROUBLESHOOTING	18
16.1 Abnormal noise	18
16.2 Leaking seal	18
16.3 Inadequate output	18
17. STORAGE	19
17.1 Short duration (≤ 1 month)	19
17.2 Long duration (> 1 month)	19
18. SCRAPPING	19

1. PRESENTATION



- B Bypass
- P Pump plate
- V1 Drain plug-vacuum M10
- V2 Drain plug-pressure M10

- F Direction of rotation
- O Direction of suction
- S - Mounting point for temperature sensor
- G Grease nipple

2. OPERATING LIMITS

CC8-50 AP	Speed range (rpm)	Flow rate pression (m ³ /h)	Max pressure (bar)	Required power (Kw)
Viscosity < 40 cSt	450 ► 1200	-	4	-
	450 ► 750	35	8	10
	450 ► 1000	50	4	6,5

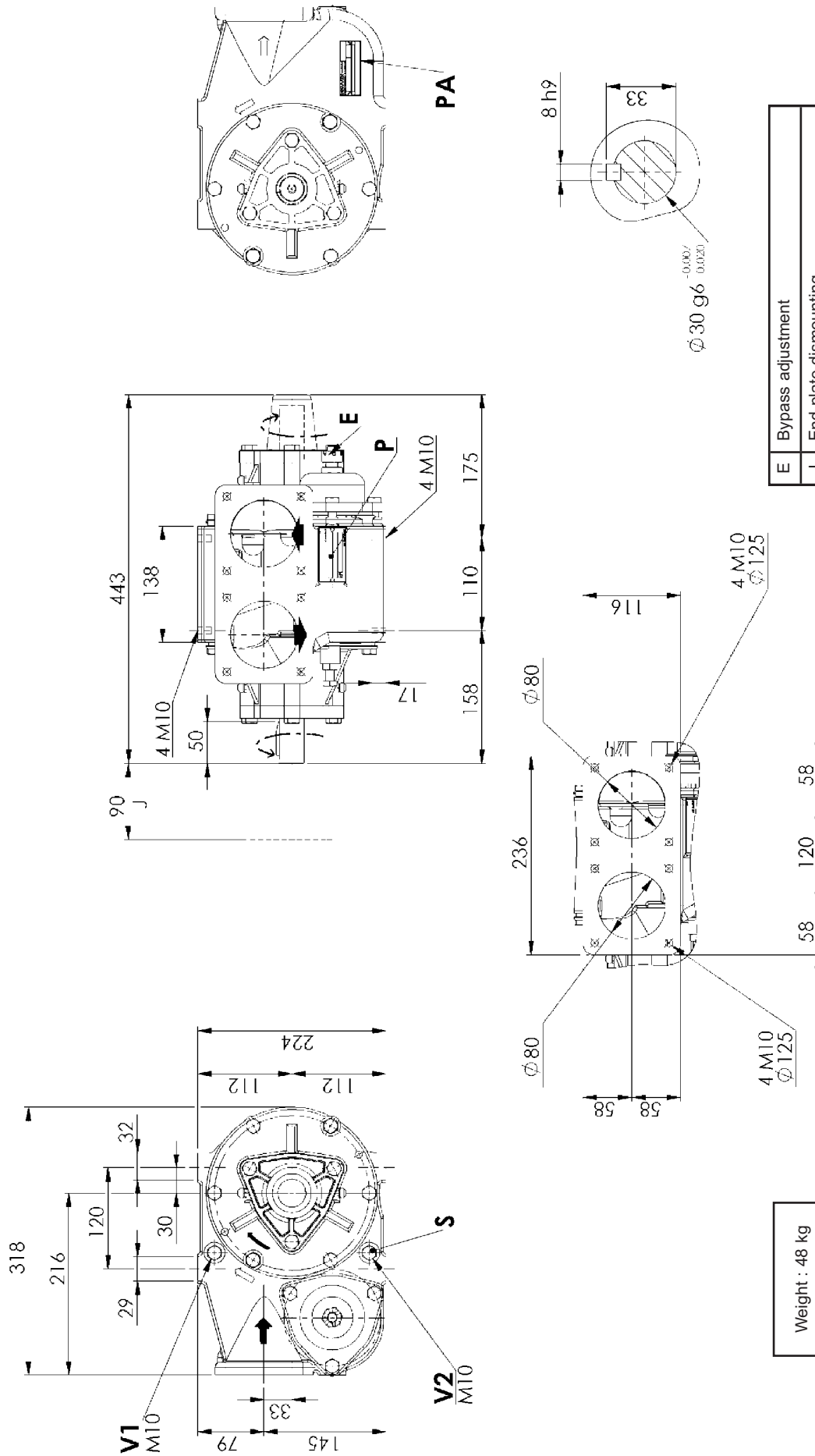
The pumps CC8 are delivered with spring (4 or 8 bar) adjusted at 4 bar.

When requested, they can be delivered with a 8 bar spring adjusted at the maximum pressure of use.

Temperature range allowed : -20°C à +80°C

Products authorised : Contact us

3. OVERALL DIMENSIONS

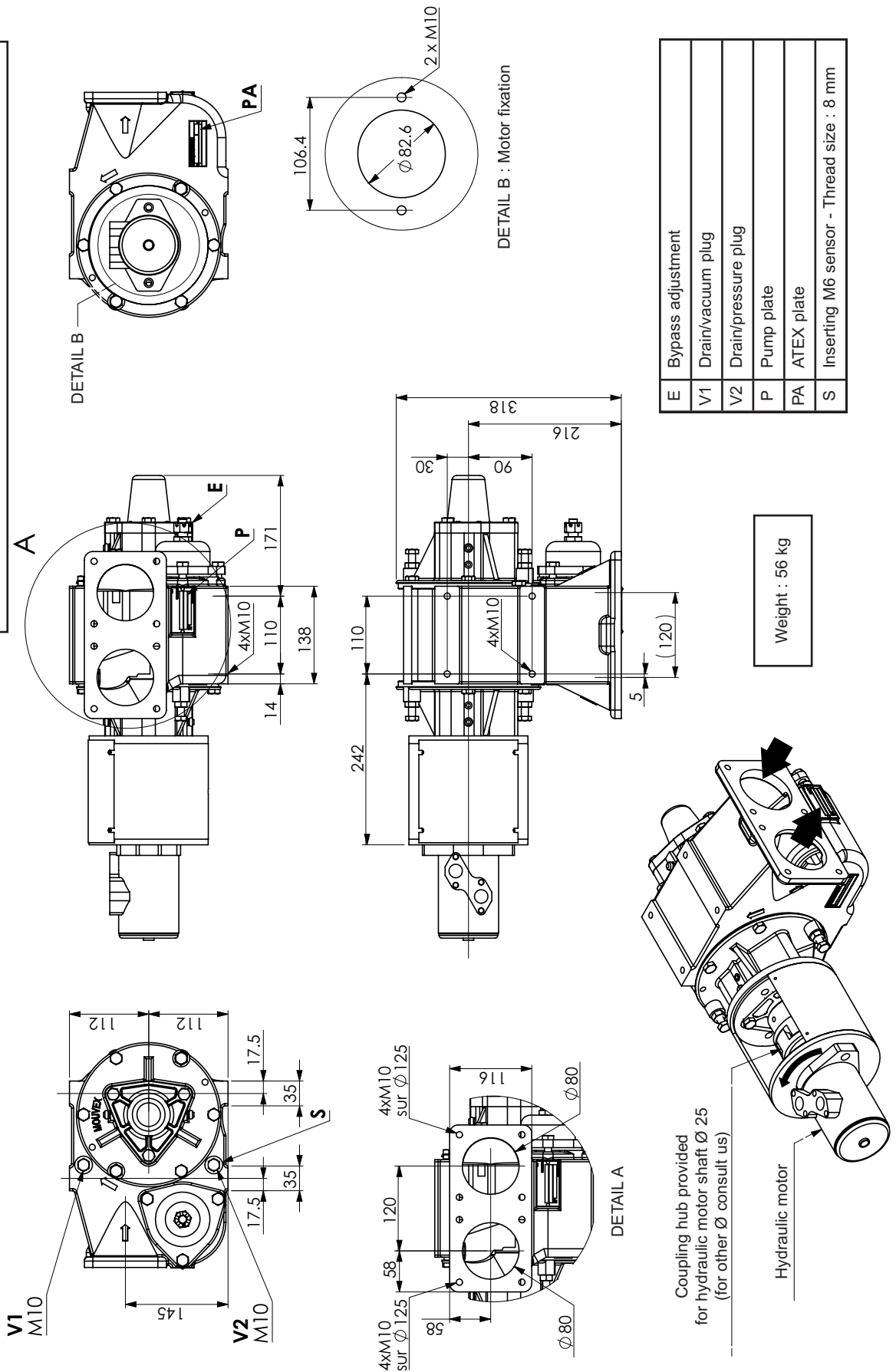


E	Bypass adjustment
J	End plate dismounting
V1	Drain/vacuum plug
V2	Drain/pressure plug
P	Pump plate
PA	ATEX plate
S	Inserting M6 sensor - Thread size : 8 mm

Weight : 48 kg

2. OVERALL DIMENSIONS (continued)

CC8-50 with SAE-A hydraulic motor



4. INSTALLATION

4.1 Choice of pump

To obtain the service expected from a MOUVEX pump, regarding both performance and longevity, it is vital that the type of pump, its speed and the materials used for its construction are determined as a function of the pump output, its installation and operating conditions.

You can contact our Technical Services at any time to ask for the information you require.

4.2 Direction of rotation

The pump rotates in one direction only. This is indicated by an arrow on the pump housing. However, the pump has both of shaft-ends led out and must be driven through one the other depending on the direction of rotation of the power take-off.

Because the pump rotates in one direction only, the positions of the suction and discharge ports are not be reversed (see arrows on housing). The safety bypass has not to be reversed.

4.3 Pump protection

It is essential to protect the pump against possible foreign matter by connecting a filter to the suction pipe (see Instructions 1011-G00 Filters PF).

4.4 Pipe diameter

In order to achieve the best usage conditions, it is important to take the following recommendations into account when it comes to pipe dimensions :

- The pipe diameter should be chosen as a function of pipe length and the flow rate and viscosity of the pumped liquid, so that any head loss remains within the permissible limits for the motor/pump unit. Therefore it is difficult to give general and precise directions. However, it is never a disadvantage to over-dimension pipe diameters, especially for the section on the inlet side.
- In the case of thin liquids and the piping on the discharge side, one can generally allow a diameter equal to that of the ports on the pump and a larger diameter for the piping on the inlet side, if the value for the inlet power of the pump is negative or especially high.
- In the case of viscous liquids, special care should be given to choosing pipe diameters. In fact, the variation in head loss is proportional to viscosity and inversely proportional to the diameter as power of 3. A slight reduction in the pipe diameter could have serious consequences for the operating conditions of the pump.

Our Technical Services are always available to provide you with precise data if you give them accurate information or, better still, the installation plans.

4.5 Piping assembly

In order to achieve the best usage conditions, it is important to take the following recommendations into account when it comes to fitting pipes :

- The location of the pump in the transfer or recycling circuit should always be determined so as to reduce the height and length of the piping as much as possible.
- Wherever possible, siphons and reverse slopes should be avoided in the inlet piping.
- Particular care needs to be taken with the sealing on the inlet side to prevent air entering.
- Pipe elbows must always have a large radius (more than 3 times the diameter of the pipes) and must not be mounted too close to the pump flanges (min. recommended distance : 10 times the diameter of the pipes), on both the inlet and discharge sides.
- The pipes are supported and aligned with the pump in such a way as to avoid putting stress on the pump flanges. Non-compliance with this instruction can lead to deformation of pump parts, misalignment of bearings and accelerated material wear, even causing parts to break.
- For ease of adjustment and checking, it is recommended that pressure tapping ports for pressure gauges/vacuum gauges be provided as close as possible to the pump's inlet ports (preferably, at a distance of less than 5 times the diameter of the piping).
- If the suction head is especially high or if you want to prevent the pipes emptying at shutdown, you can install a foot valve. It should have a large diameter so as not to generate additional head loss.
- We recommend placing valves as close as possible to the pump ports to avoid having to drain the entire system each time maintenance is carried out. These valves should have the same diameter as the pipes and preferably by full bore models.
- All these steps should be taken to prevent foreign bodies entering the pump (the use of a filter in the pump inlet pipe is strongly recommended).
- Before installing new pipes or tanks, be sure to clean them very carefully to remove any solder, rust, etc. which could be carried along with the water and cause excessive pump wear.
- The pipes should be designed to allow for thermal expansion/contraction (the use of flexible hoses or expansion loops is recommended).
- If the liquid may freeze or solidify, prepare for draining the piping by installing drain taps at the low points and air vents at the high points.

4. INSTALLATION (continued)

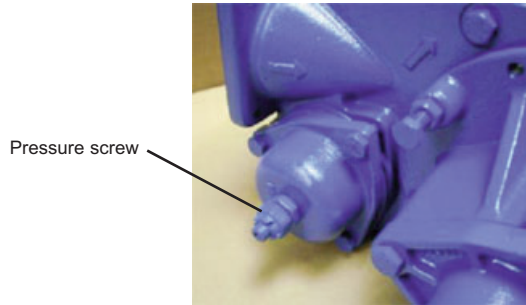
4.6 Bypass setting

The bypass must be set depending on the needs and the limitations of the installation.

A preset can be operated for mechanical bypass, please refer to the information below, but it has to be followed up by a check-up on the installation.

Process :

- Loose the nut.
- Unscrew completely the pressure screw.




- Screw it clockwise depending on the values given below. Please consider the accuracy is +/- 0,3 bar on the given values.
- Tight the nut.
- Check on the installation the pump gives the right pressure (using a manometer) with a closed valve on the discharge line.

Pressure got (bar) :

Pressure screw rotation	Mechanical bypass	
	4 bar	8 bar
0	2,1	3,5
1	2,4	4,0
2	2,6	4,5
3	2,9	5,0
4	3,2	5,5
5	3,4	6,0
6	3,6	6,5
7	3,9	7,5
8	4,2	8,0
9	4,4	-

5. DIRECT DRIVE BY MOTOR

5.1 Installation of units

	WARNING
BE CAREFUL WITH THE WEIGHT OF THE PARTS WHEN THEY ARE BEING REMOVED.	
<p>The weight of the parts can be dangerous and may provoke bodily injuries or material damages.</p>	


The correct seating of the pump is vital for its efficient operation and its longevity. The base must be flat, level and sufficiently resistant to absorb the stresses caused by the motor-driven pump without deformation (if it is made of concrete, it must comply with standard BAEL 91).


In the case where the unit is fastened by anchor lugs or bolts, it must be carefully wedged to prevent any deformation of the chassis when tightening the bolts. Deformation of the chassis will cause stress prejudicial to the pump and the drive device and put the coupling out of true alignment, thereby causing vibrations, noise and premature wear. Care must be taken so that the chassis is clear of the ground, apart from the base plates.

If the chassis is a one-piece unit in doubled plate, it is recommended that a horizontal clearance of about 50 cm be left between one section of the chassis and the other to allow access for fastening the nuts on the pump, reduction gearbox and motor. In all cases, the clearance around the motor-driven pump should allow room for demounting the pump (for distances, refer to the dimension drawing at the start of the notice).

The chassis is equipped with a ground connection that must be used to protect people and equipment.

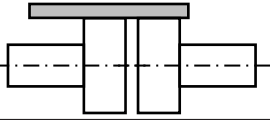
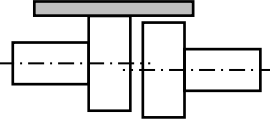
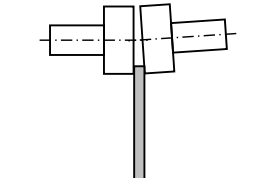
5.2 Alignment of motor/pump and reduction gearbox/pump shafts

	WARNING
OPERATION WITHOUT THE SHAFT PROTECTOR CAN CAUSE SERIOUS PERSONAL INJURY, MAJOR PROPERTY DAMAGE OR DEATH.	
<p>Do not operate without guard in place.</p>	

	WARNING
DISCONNECT THE ELECTRICITY SUPPLY BEFORE ANY MAINTENANCE OPERATION.	
<p>Dangerous voltage. Can cause injury and death.</p>	

The motor and pump shafts are accurately aligned at the factory before dispatch, but they should be checked carefully when received at the site and realigned if necessary. To align the coupling and the shaft, use a straight-edge to check the concentricity and thickness gauges for the angular misalignment.

The 3 figures below show the procedure in detail and the admissible deviations :

<i>Carry out the control at four points : at the top - at the bottom - left - right</i>	
	<i>Correct</i>
	<i>Bad alignment</i>
	<i>Angular fault (maximum : 1°)</i>

Controlling the alignment at each stage of the installation is important to be sure that none of the following procedures has generated stresses on the unit or the pump :

- after fastening on the foundations.
- after fastening the pipes.
- after the pump has been operated at the normal operating temperature.



REMINDER :

You cannot rely on the coupling to compensate for misalignment.

NEVER START A UNIT IF THE COUPLING ALIGNMENT IS INCORRECT. THIS WILL RENDER OUR WARRANTY INVALID.

5. DIRECT DRIVE BY MOTOR (continued)



5.3 Electric motors



 WARNING	<p>DISCONNECT THE ELECTRICITY SUPPLY BEFORE ANY MAINTENANCE OPERATION.</p>
	
<p>Dangerous voltage. Can cause injury and death.</p>	



Check that the supply voltage matches the indications on the motor rating plate.

Comply with the wiring diagram, make sure the wires are rated for the power and take care with the contacts, which must be thoroughly tightened. The motors must be protected by appropriate circuit breakers and fuses. Connect the regulatory ground connections.

Check the direction of rotation.

 WARNING	<p>TAKE ALL NECESSARY MEASURES TO RENDER ANY START-UP, EVEN ACCIDENTAL, OF THE PUMP DURING THE WORK IMPOSSIBLE.</p>
	
<p>Any unforeseen start-up can cause serious injuries or important material damages.</p>	

 WARNING	<p>PUMPS OPERATING AGAINST A CLOSED VALVE CAN CAUSE SYSTEM FAILURE, PERSONAL INJURY AND PROPERTY DAMAGE.</p>
	
<p>Hazardous pressure can cause personal injury or property damage.</p>	

 WARNING	<p>OPERATION WITHOUT THE SHAFT PROTECTOR CAN CAUSE SERIOUS PERSONAL INJURY, MAJOR PROPERTY DAMAGE OR DEATH.</p>
	
<p>Do not operate without guard in place.</p>	

This check should be done with no liquid being pumped, and both the inlet and discharge circuits vented to avoid generating unexpected pressure (on the inlet side, for example). This will avoid damaging either the pump or the system.



Start the pump empty to check that the connections are good and that the direction of rotation corresponds to the system intake and discharge directions. If it is necessary to reverse the direction of rotation, follow the instructions below :

Three-phase motor : switch any 2 current input wires.

Bi-phase motor : switch two same phase wires.

Single-phase motor : follow the instructions on the notice supplied with the motor.

5.4 Diesel engines drive

 CAUTION	<p>THE SURFACES OF THE PUMP CAN BE AT A TEMPERATURE LIABLE TO CAUSE INJURY OR SEVERE DAMAGE.</p>
	
<p>Excessive temperature- can cause injury or severe damage.</p>	

Do not forget that these engines are not reversible. It is therefore vital to carefully check the inlet and outlet sides of the pump before connecting the pump unit to the piping.

The use of diesel engines drive is now well known. Nevertheless, we strongly recommend that you carefully read the technical manuals concerning them.



6. DRIVE BY POWER TAKE OFF

Refer to Instructions NT 1010-B00 CC8 CC10 CC20 PUMPS DRIVEN BY POWER TAKE OFF.

7. USE



The operator should remain nearby the equipment throughout the use to ensure the proper functioning of the system.



7.1 Pumping hot liquids

 CAUTION	<p>THE SURFACES OF THE PUMP CAN BE AT A TEMPERATURE LIABLE TO CAUSE INJURY OR SEVERE DAMAGE.</p>
	
<p>Excessive temperature- can cause injury or severe damage.</p>	

When pumping hot liquids, make your you retighten screws and bolts after starting for the first time in order to compensate for contraction.

7.2 Pump full of liquid when stopped

 WARNING	<p>FAILURE TO INSTALL ADEQUATELY SIZED PRESSURE RELIEF VALVE(S) CAN CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.</p>
	
<p>Hazardous pressure can cause personal injury or property damage.</p>	



 WARNING	<p>IF PUMPING HAZARDOUS OR TOXIC FLUIDS, THE SYSTEM MUST BE FLUSHED PRIOR TO PERFORMING ANY SERVICE OPERATION.</p>
	
<p>Toxic or hazardous fluids can cause serious injury.</p>	



If the pump circuit is to be located between valves and/or a non-return valve, you need to take account of the variations in temperature that can lead to contraction of the liquid in the circuit. In this case, you need to provide some means of compensating for the contraction. A discharge valve may be sufficient. The opening pressure for this valve should be compatible with the permitted pressure for the other components in the circuit.

It is also advisable to fit a discharge device to allow the circuit to be completely emptied for any maintenance work.

In the case of liquids containing particles settling on shut-down, it is necessary to make sure the consistency of the deposit will not impede restarting the pump.

7.3 Starting-up the pump

 WARNING	<p>FAILURE TO RELIEVE SYSTEM PRESSURE PRIOR TO PERFORMING PUMP SERVICE OR MAINTENANCE CAN CAUSE PERSONAL INJURY OR PROPERTY DAMAGE.</p>
	
<p>Hazardous pressure can cause personal injury or property damage.</p>	

 WARNING	<p>OPERATION WITHOUT THE SHAFT PROTECTOR CAN CAUSE SERIOUS PERSONAL INJURY, MAJOR PROPERTY DAMAGE OR DEATH.</p>
	
<p>Do not operate without guard in place.</p>	

Before starting the pump, make sure that the following conditions are met :

- The circuit should be in one of its pumping configurations, with the appropriate valves open, especially on the intake side.
- For products requiring heating, they must be brought to their pumping temperature before starting the pump.

7.4 Running without liquid in the pump

MOUVEX CC8 pumps can run without liquid in the pump for 5 minutes without causing damage, in particular during pump priming.

7.5 Using of the pump with a valve closed on the discharge line

The using of the pump with a valve closed on the discharge line implies the liquid is not renewed which generates a heating up. In consequence, that operating way must not exceed 3 minutes.

7.6 Shutting down the pump

When shutting down the pump, we recommend waiting for it to stop completely before closing the valves, especially the inlet valve.

7. USE (continued)

7.7 Protection from frost

If there is a risk of frost with the product contained in the pump, it is necessary to drain the body after each use as follows :

Step 1 :

- Check there is no valve closed on the discharge side as well potential counter pressure due to a check valve or liquid remaining inside a vertical pipe.
- Rotate the pump.
- Create an air entering on the suction side during 30 seconds.
- Stop the pump and make sure no liquid is coming back > pump has to be closed.

Step 2 :

- Defect or in complement, drain by the bottom plug.



Drain plug

7.8 Restarting

Follow the standard start-up procedure for the pump/ motor-driven pump, as well as the instructions below.

Turn the pump by hand to make sure the parts move freely.

Remove the bypass and inspect the parts and make sure they move freely.



8. NECESSARY TOOLS



- Flat wrenches 13, 17, 22
- Tube wrench 17
- Circlip opening pliers
- Screwdriver
- Mallet
- Torque wrench



Makeup torques :



- M1047 Nm
- M 823 Nm
- M 610 Nm



9. DISMANTLING - REASSEMBLY



	WARNING
	DISCONNECT THE ELECTRICITY SUPPLY BEFORE ANY MAINTENANCE OPERATION.
Dangerous voltage. Can cause injury and death.	



	WARNING
	DISCONNECTING THE FLUID OR PRESSURE CONTAINMENT COMPONENTS DURING PUMP OPERATION CAN CAUSE SERIOUS PERSONAL INJURY, DEATH OR MAJOR PROPERTY DAMAGE.
Hazardous pressure can cause personal injury or property damage.	



	WARNING
	FAILURE TO RELEASE ALL SYSTEM AIR AND WHEN EQUIPPED, HYDRAULIC PRESSURE, CAN CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.
Hazardous pressure can cause personal injury or property damage.	

	WARNING
	IF PUMPING HAZARDOUS OR TOXIC FLUIDS, THE SYSTEM MUST BE FLUSHED PRIOR TO PERFORMING ANY SERVICE OPERATION.
Hazardous or toxic fluids can cause serious injury.	

	WARNING
	BE CAREFUL WITH THE WEIGHT OF THE PARTS WHEN THEY ARE BEING REMOVED.
The weight of the parts can be dangerous and may provoke bodily injuries or material damages.	

	CAUTION
	THE PUMP LUBRICANT IS VERY SLIPPERY AND MAY CAUSE SERIOUS INJURY. ANY SPILLS MUST BE CLEANED UP.
Slippery lubricant. Spills should be cleaned up.	

	CAUTION
	THE SURFACES OF THE PUMP CAN BE AT A TEMPERATURE LIABLE TO CAUSE INJURY OR SEVERE DAMAGE.
Excessive temperature can cause injury or severe damage.	

	WARNING
	TAKE ALL NECESSARY MEASURES TO RENDER ANY START-UP, EVEN ACCIDENTAL, OF THE PUMP DURING THE WORK IMPOSSIBLE.
Any unforeseen start-up can cause serious injuries or important material damages.	

Before any dismantling, make sure that the pump has been drained and take all the necessary precautions to prevent it from starting up. The pump must not start up, even accidentally.

9. DISMANTLING - REASSEMBLY (suite)

9.1 Dismantling on side opposite to drive system

Unscrew the screws **723**, and remove the cover **712** and the seal **714**.

Remove circlip **537**.

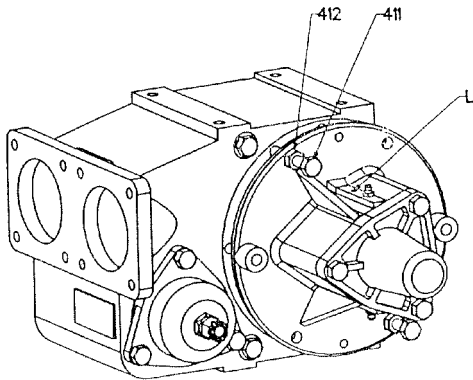
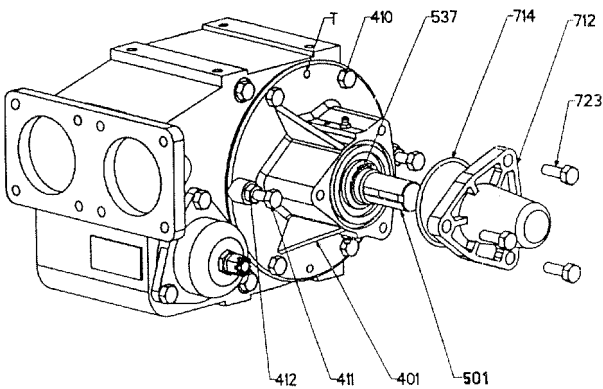
Carefully clean the shaft end (remove any trace of paint, oxidation, burrs...).

Unscrew the 4 screws **410**.

Unscrew the 4 screws **411** fitted with their nut **412** and place them in the 2 tapped holes T.

Screw up the 2 screws at the same time so that the end-plate is gradually released along the centre line.

When the end-plate is free on the shaft, hold it by hand supporting it.



9.2 Dismantling on drive side

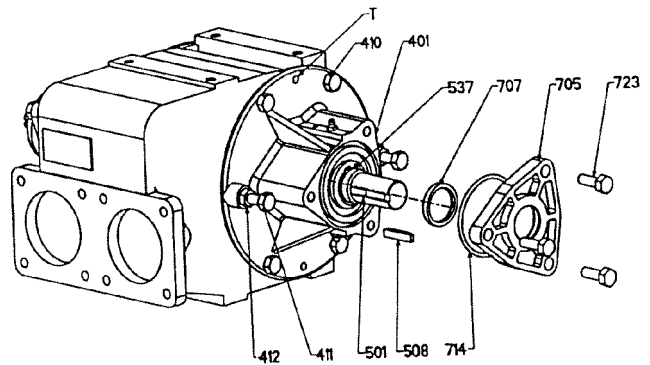
Uncouple the pump by removing the coupling.

Remove the key **508** and carefully clean the shaft end to remove any trace of paint, oxidation, burrs...

Unscrew the screws **723**, remove the cover **705** with its seal **714** taking care not damaging seal **707**.

Remove the circlip **537**.

Operate then in a identical way in § DISMANTLING ON SIDE OPPOSITE TO DRIVE SYSTEM.



9. DISMANTLING - REASSEMBLY (suite)

9.3 Reassembly of the pump

When putting the end-plate back into place, take care to have the shaft seal drive lugs facing the notches on rotor.

Replace the cover **712** or **705** on the end plate **401** with screws **723**.

Lubricate the shaft **501** slightly.

Make sure that the end-plate seal **403** is correctly positioned, check it and change it if necessary.

Position the end plate **401** on the shaft and approach it as far as possible by hand (make sure to position one of the drainage port L pointing down).

Finish fitting the end-plate, screwing the 2 nuts **412** gradually on to the 2 screws **411**.

Make sure that end-plate is centred while screwing.

When the end-plate is in place, remove the screws **411** and their nuts **412** and screw them up in the 2 bosses taking care to position one of the drainage port L pointing down.

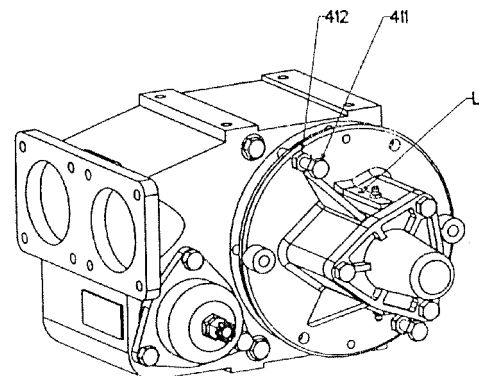
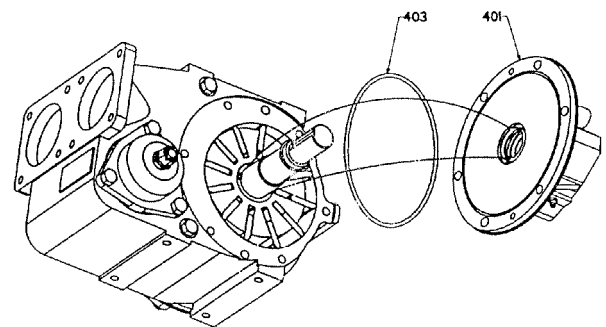
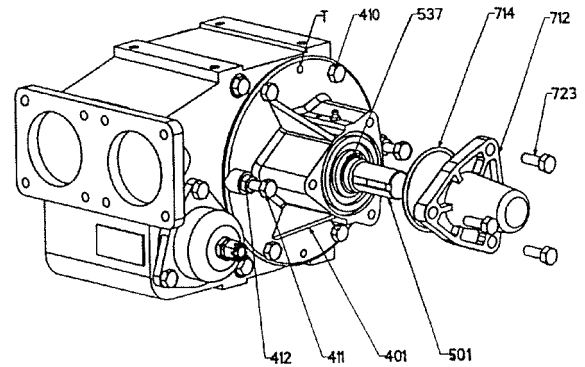
Replace the screws **410**.

Remove the cover **712** or **705**.

Replace the circlip **537**.

Replace the cover **705** with its seal **707** after check condition of seal.

Free the shaft line by a light blow of mallet on its extremity and make sure that the pump rotates freely when turned by hand.



9.4 Assembly of flange for hydraulic trunk

Refer to Instructions NT 1010-K00 ASSEMBLY OF FLANGE FOR HYDRAULIC TRUNK ON PUMP CC8 CC10.

10. CHANGING THE VANES

Open the pump on one side or the other.

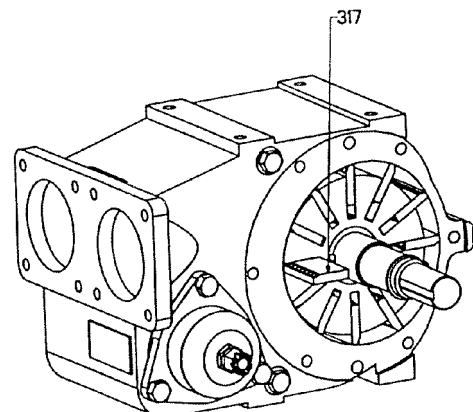
Remove the vanes **317**.

Check for wear (see § MAINTENANCE).

If vane wear is abnormal, check surface condition of body and of end-plate faces.

Refit the vanes (new if necessary) respecting the direction of assembly.

Reassemble the pump and check that it rotates freely when turned by hand.



11. INSPECTION OF THE PUSHRODS

Uncouple the pump by removing the coupling.

Dismantle the cover at the non-drive side (see § DISMANTLING ON SIDE OPPOSITE TO DRIVE SYSTEM).

Unscrew the 4 screws **410** and the 2 screws **411** with their nut **412**.

Pull on the end plate **401** in such a way as to release the rotor **301** from a little more than half of the pump body **101**.

Hold the vanes **317** in place by means of suitable straps (elastic, bracelets...).

Completely remove the shaft **501** with the rotor **301**, the vanes **317** and the complete bearing of the pump body **101**.

Do not dismantle this assembly.

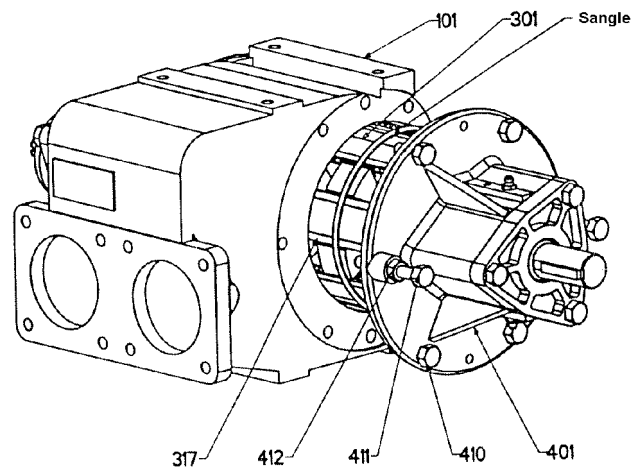
Remove the straps and the vanes **317**.

Remove the pushrods **318** by pushing them, if necessary, with a screwdriver.

Remove the rotor **301**.

Check the pushrods **318** for wear (see § MAINTENANCE) and change them as necessary.

Check the wear of the keyways and of the 2 keys **536**.



12. REASSEMBLY OF THE VANES AND THE PUSHRODS

Position the shaft **501** vertically with the end plate facing down.

Position the seal **403**, fixing it if necessary with a suitable lubricant.

Fit the keys **536**.

Insert the rotor **301** on to the shaft **501**.

Check that the holes of the plunger of the rotor **301** coincide with those of the shaft **501**. If they do not, re-insert the rotor **301** in the other direction.

See to it that the shaft seal carrier engages in the notches provided for this effect.

Insert the pushrods using orthogonal matings (see figure opposite).

Insert the pushrods making sure they are fitted in the right direction (see detail A) and check that they slide freely.

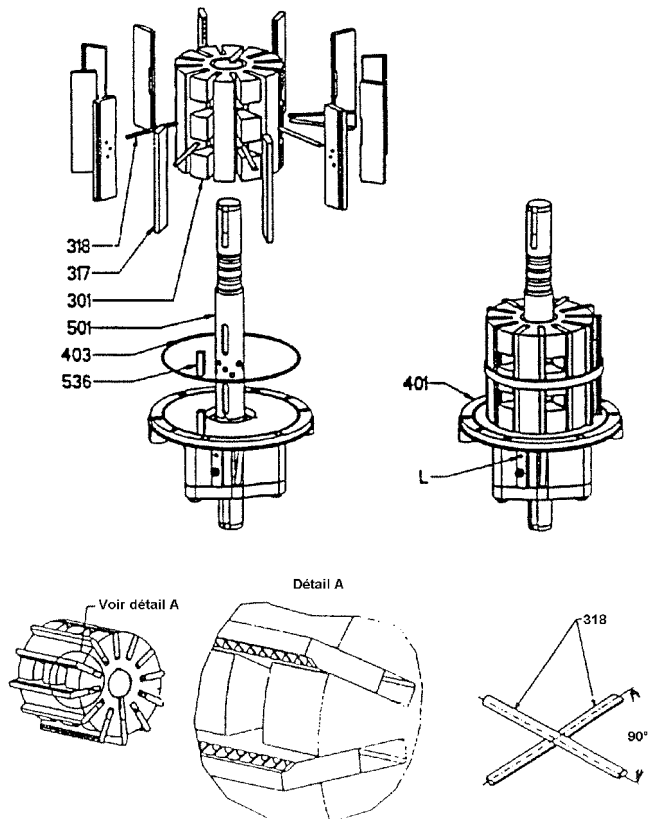
Hold them in place using suitable straps (elastic, bracelets...).

Insert this assembly in the body **101** joining the straps at an opportune moment.

Orientate the end plate **401** with a drainage port L pointing down and fixing it to the pump body **101**.

Re-fit the end plate on the non-drive side (see § REASSEMBLY OF THE PUMP).

Check that the pump rotates freely when turned by hand.



13. CHANGING MONOBLOC SHAFT SEAL

Dismantling

Open the pump and remove the end-plate on its machined side taking care not to damage the shaft seal drive lugs.

Remove parts.

Remove shaft seal by inserting fingers in shaft seal center hole.

Reassembly

IMPORTANT

Lubricate the bore which takes the roller bearings.

Make sure that the seals **605**, **613** and the shaft seal are in good condition. Change them if necessary.

Place the seal **605** in the end plate **401**.

Make sure that the seal **613** is correctly positioned in the shaft seal **630**.

Refit the shaft seal **630** (a new one if necessary), in the end plate **401**, supported on the seal **605**.

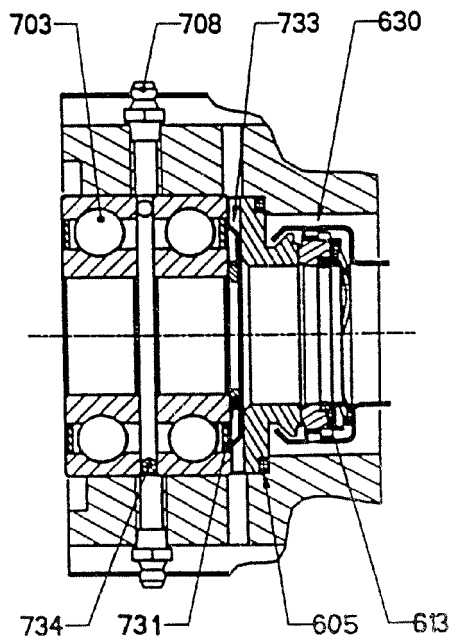
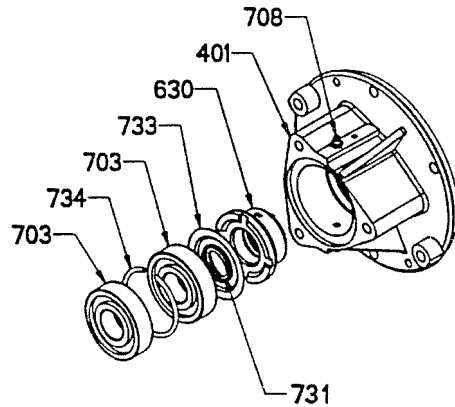
Place the protection ring **733** so as to be supported on the shaft seal **630**.

Place a bearing **703** supported on the protection ring **733**.

Position the spacer **734** with its aperture opposite a grease nipple **708** (if present).

Place the second bearing **703** so it is supported on the spacer **734**.

Refit the end plate (see § REASSEMBLY OF THE PUMP).



14. BYPASS

Dismantling

Set bypass at minimal pressure by unscrewing the lock-nut **835** taking care to count the number of rotations so as to be able to reset bypass at initial pressure setting.

Unscrew the 3 screws **856** of the bypass cap **827**.

Remove spring **824**.

Remove the valve **823** by pulling its cylindrical section with the fingers.

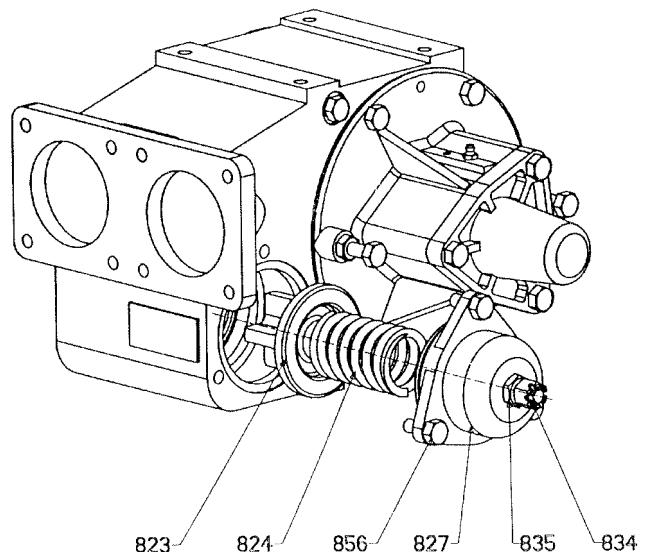
Check condition of bypass.

Reassembly

Clean all parts before reassembly.

Reassemble in reverse order of dismantling.

Set bypass at initial pressure setting by tightening nut with the same number of rotations as counted during dismantling.



15. MAINTENANCE

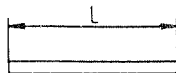
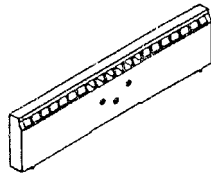
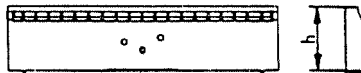
15.1 Lubrication

- Grease to use : good quality ball bearing grease. In case of pumps operated higher than 100°C, a high point of drop grease has to be selected.
- Fréquency : every 500 hours or one time per year.
- Injected volume : the usage of a pneumatic grease pump is forbidden because of the risk to damage the mechanical seals. The grease has to be added with a manual pump, 2 blows on an only one grease nipple of every pump end.

15.2 Inspection of the vanes

DIMENSIONS OF THE VANES - mm	
Original height "h"	Change when "h" < to
31,0	29,0

DIMENSIONS OF THE PUSHRODS - mm	
Original lenght "L"	Change when "L" < to
85,0	84,5



15.3 Cleaning the filter

The pump should always be protected against possible foreign matter by means of a filter connected into the suction pipe.

Check the cleanliness of the filter mesh from time to time as a partly clogged filter could starve the pump and reduce its output.

To clean the filter, remove the meshes and clean them carefully. Before refitting them, drain the filter by removing the drain plug, then rinse it thoroughly.

16. TROUBLESHOOTING

CAUTION :
OBSERVE ALL SAFETY WARNINGS CONTAINED IN THIS MANUAL.

16.1 Abnormal noise

Main causes :

- Excessive suction vacuum, due to :
 - a pipe, accessories (valves, filter...) which are either clogged or of insufficient diameter,
 - excessive suction head (e.g. during liquid transfer operations),
 - a viscosity or vapour tension too high for the system to cope with (e.g. when changing the product to be pumped).
- Overly high rotation speed for the liquid being pumped.
- Pump damaged
 - as a result of binding due to :
 - an excessively high rotation speed,
 - failure to release the drive when pumping is ended,
 - sudden engagement of the drive,
 - an unduly high pulling force on the shaft, leading to a damaged ball-bearing and shaft.
 - as a result of foreign matter, due to :
 - the absence of a filter or inefficient cleaning,
 - the absence of a basket (failure to replace it after cleaning),
 - solder or rust particles remaining in the pipe between the filter and the pump.
- Bypass valve hammer on its seat due to incorrect adjustment of the spring's tension.

16.2 Leaking seal

Main causes :

- Abnormal pulling force on the shaft, leading to a damaged bearing and seal,
- Displacement of the shaft when mounting an unduly tight coupling making the seal unserviceable,
- Seal damage caused by pumping an aggressive product,
- Ball-bearing lubricated excessively or at unduly high pressure.



16.3 Inadequate output

Main causes :

- Excessive suction vacuum (see § Abnormal noise - Excessive suction vacuum),
- Bypass setting too low,
- Air leaking in at suction end,
- Discharge pipe diameter too small,
- Speed of rotation too low,
- Bypass valve not closing properly due to foreign matters on valve seat or because the valve lifting wheel (in the case of pumps fitted with one) has not been returned to its initial position after use,
- Pump damaged (see § Abnormal noise - Pump damaged due to passage of foreign matter).

17. STORAGE

17.1 Short duration (≤ 1 month)

 WARNING	IF PUMPING HAZARDOUS OR TOXIC FLUIDS, THE SYSTEM MUST BE FLUSHED PRIOR TO PERFORMING ANY SERVICE OPERATION.
	
Toxic or hazardous fluids can cause serious injury.	

MOUVEX pumps and motor-driven pumps are well lubricated when delivered to protect the internal parts during brief storage in a building where :

- the temperature remains between 10°C and 50°C.
- the relative humidity does not exceed 60%.
- exposure to vibration is limited (maximum movement : 0,05 mm).
- pump is stored in an area sheltered from bad weather and sun.

17.2 Long duration (> 1 month)

We recommend the following procedure for longer periods of storage :

The recommendations from the manufacturer should be followed if the pump is stored with its gear motor.

Pump ports should be filled with a non-corrosive liquid that it compatible with the pump components in order to prevent corrosion.

Unpainted external surfaces of the pump (e.g. shafts, couplings, etc.) should be covered in some form of anti-corrosion protection.

The bearing should be greased. If the pump is to be stored for more than three years, the grease should be replaced every three years to prevent it degrading.

The best storage conditions are inside a building that meets the conditions set out above.

If inside storage is not possible, the materials should be covered to prevent direct exposure to sun and bad weather. This protection should also prevent condensation.

It is recommended to turn the pump by hand every two months to distribute the lubricant around the interior. Items should then be placed where there is no risk of damage if they are moved slightly by vibrations.

18. SCRAPPING

The pump must be scrapped in compliance with the regulations in force.

During this operation, particular care must be paid to the drainage stages of the pump (pumped product).