



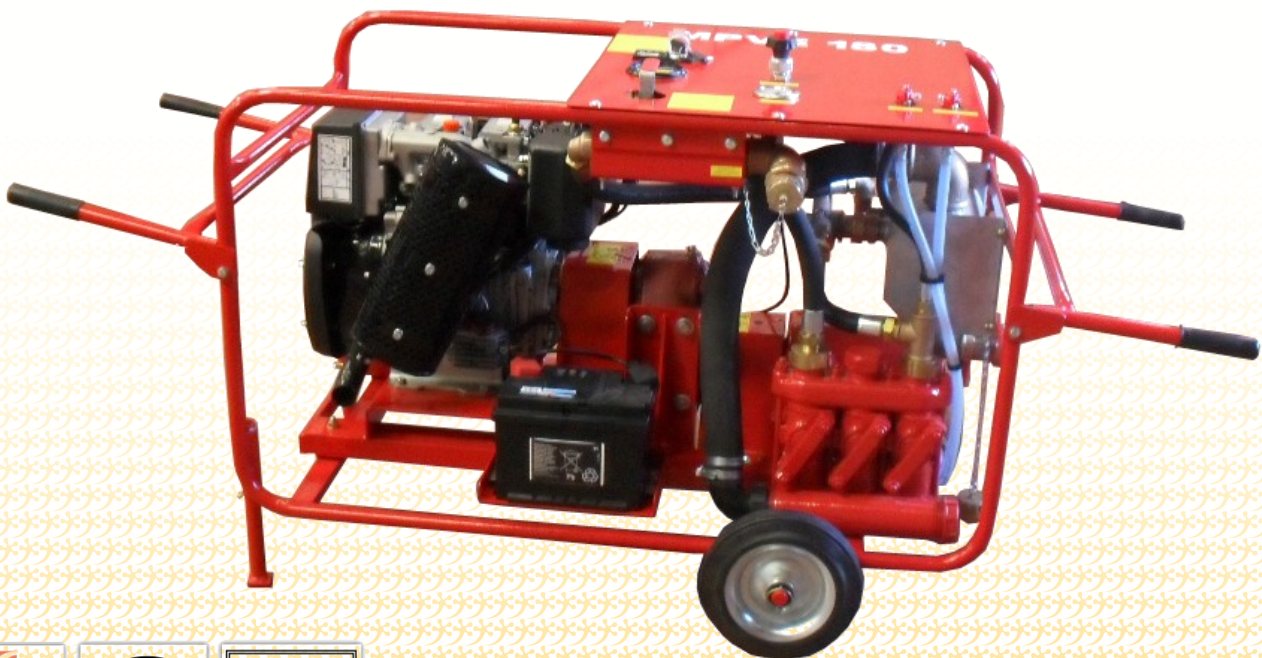
Fire-fighting



MPVE Range

USER MANUAL

MPVE 180 DIESEL



Version 3
01/09/16



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Performances

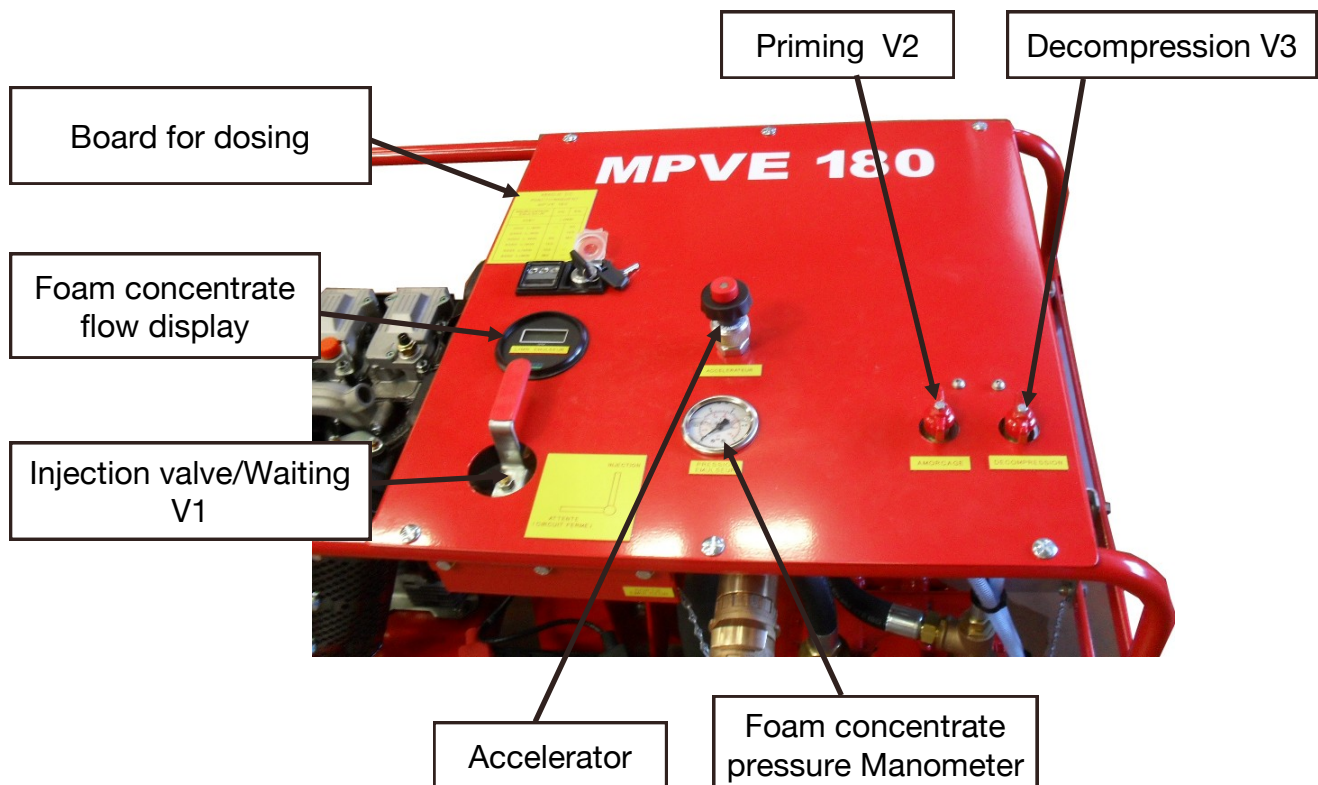
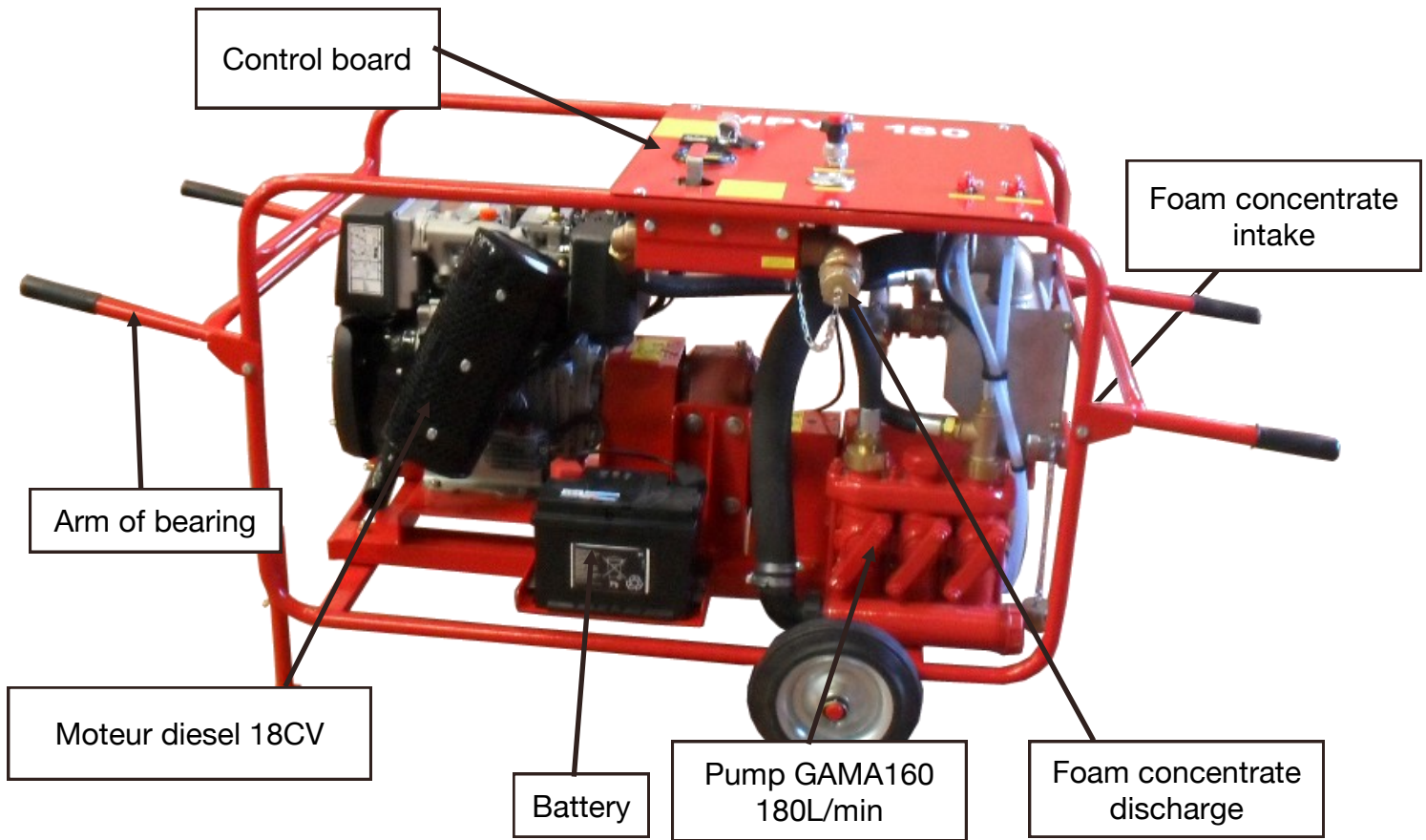
- Flow of the motorpump : 180L/min
- Maximum pressure of the motorpump : 15 bar
- Injection pipe Ø45mm distance up to 200m line Ø110mm.
- Loss in the ligne of Ø110mm due to the injection of less than 0.1 bar.
- Supplying a foam monitor 1500L to 3000 L/min , at 3% to 6%.

PRESENTATION

OF THE MPVE 180



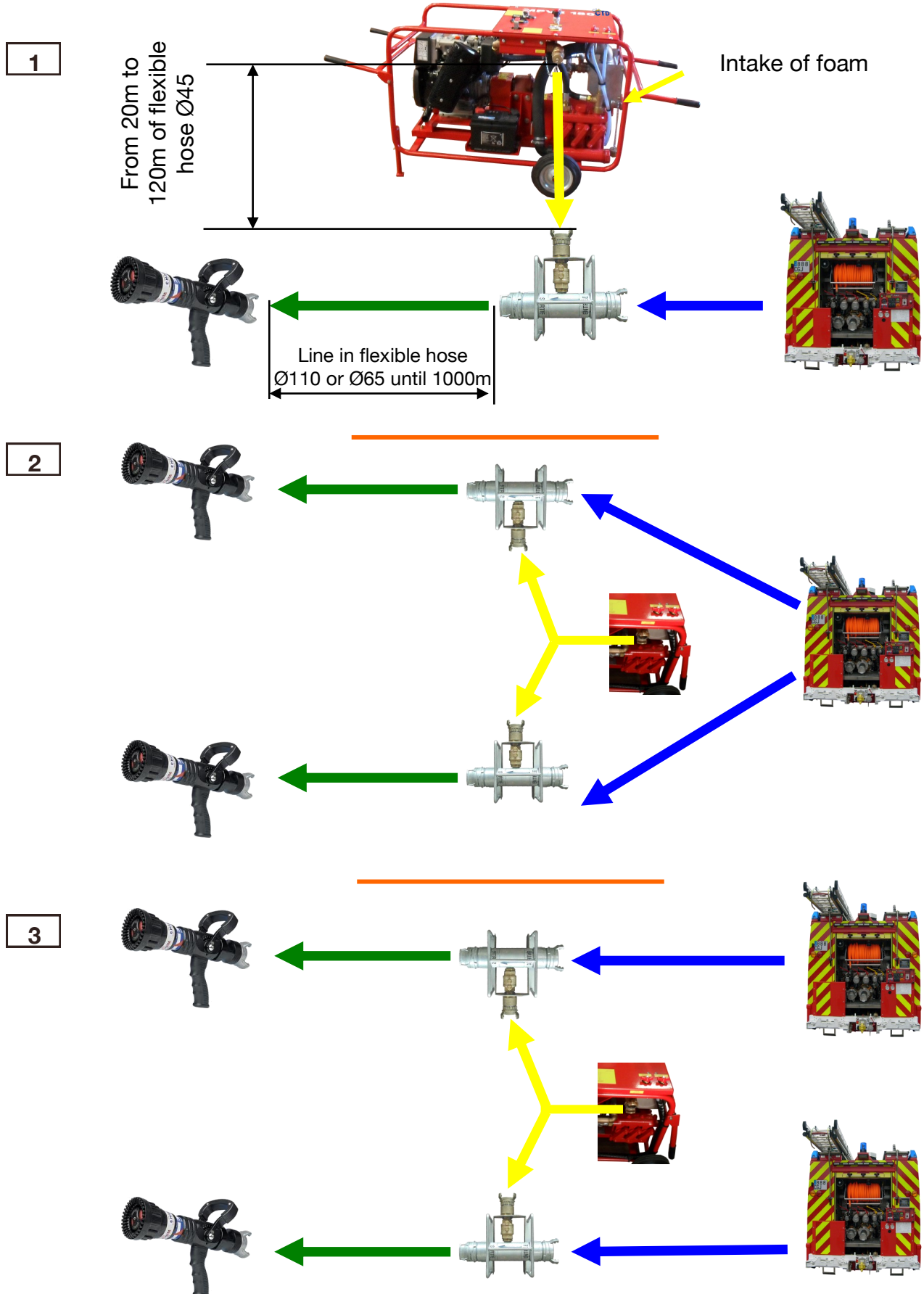
Presentation of the MPVE 180





Instructions for the injection

POSSIBLE DIAGRAM OF USE :

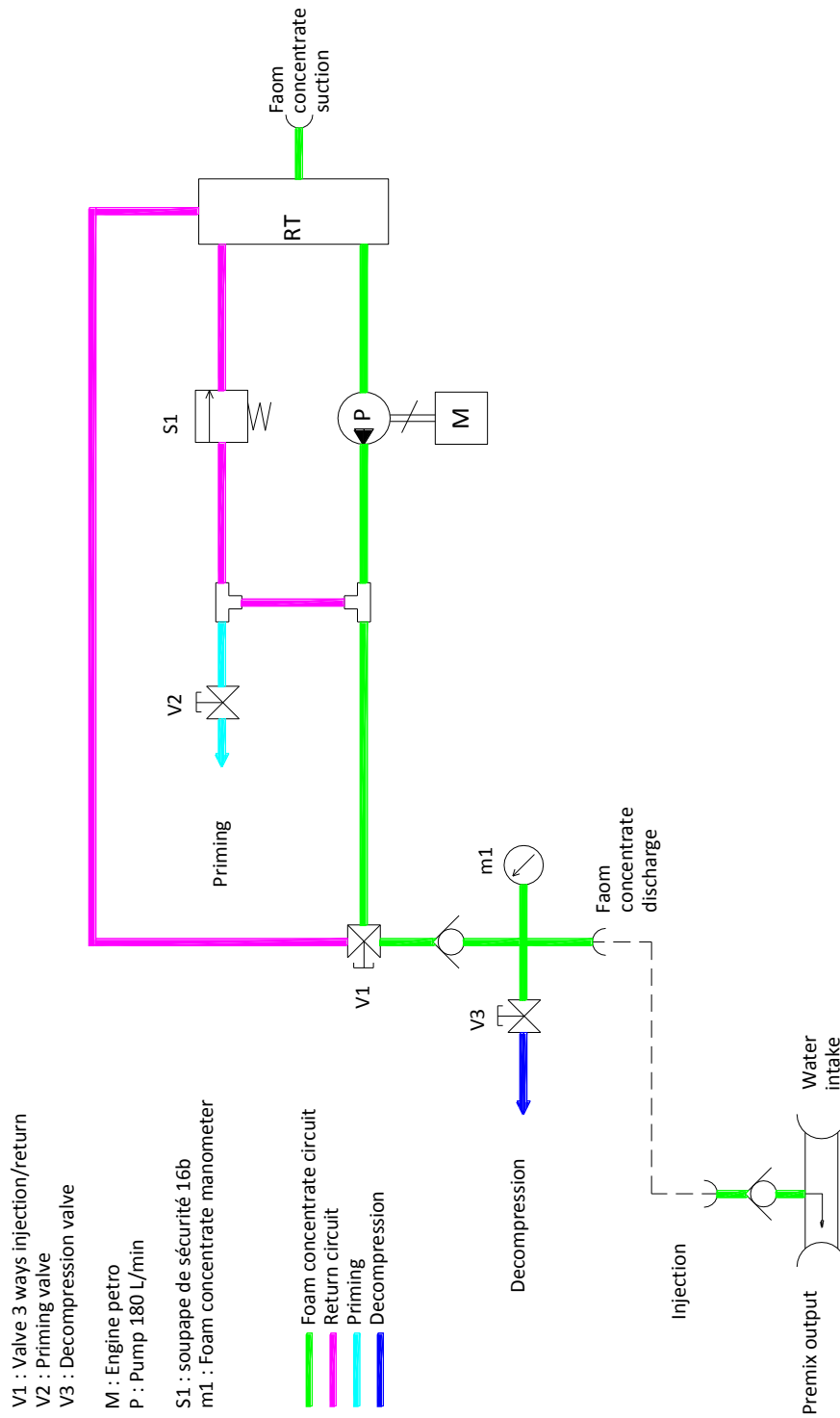


GENERAL

DIAGRAM




Hydraulic diagram



V1 : Valve 3 ways injection/return
 V2 : Priming valve
 V3 : Decompression valve
 M : Engine petro
 P : Pump 180 L/min
 S1 : soupape de sécurité 16b
 m1 : Foam concentrate manometer

— Foam concentrate circuit
 — Return circuit
 — Priming
 — Decompression

 Parc d'entreprises Visionis 01050 - GUBREINS Tél: 04 74 06 47 00 info@ctd-pulverisation.com	N° identification :	Matière :
	Ensemble : MPVE 180	Ech. : 1:1
	Désignation : hydraulic diagram	Date : 23/02/16
		Par : CDU

OPERATING

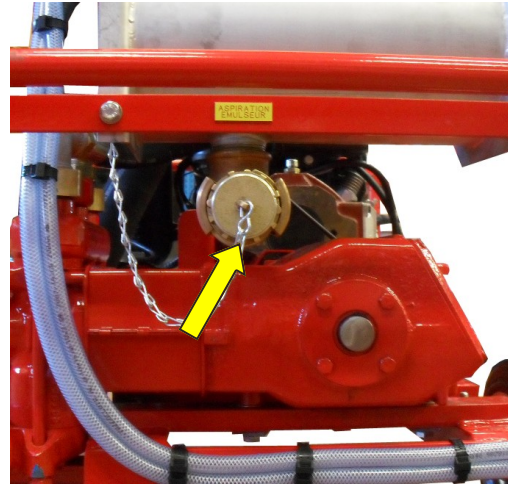
PROCEDURE



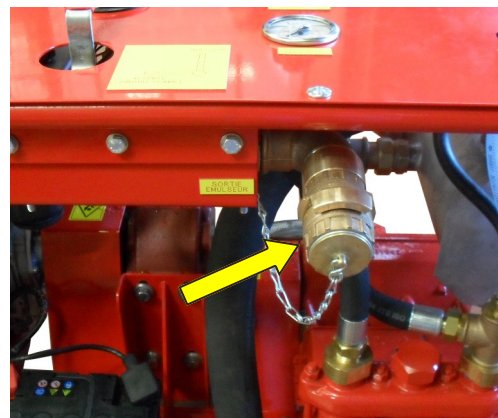
Operating procedure

1- CONNECTION :

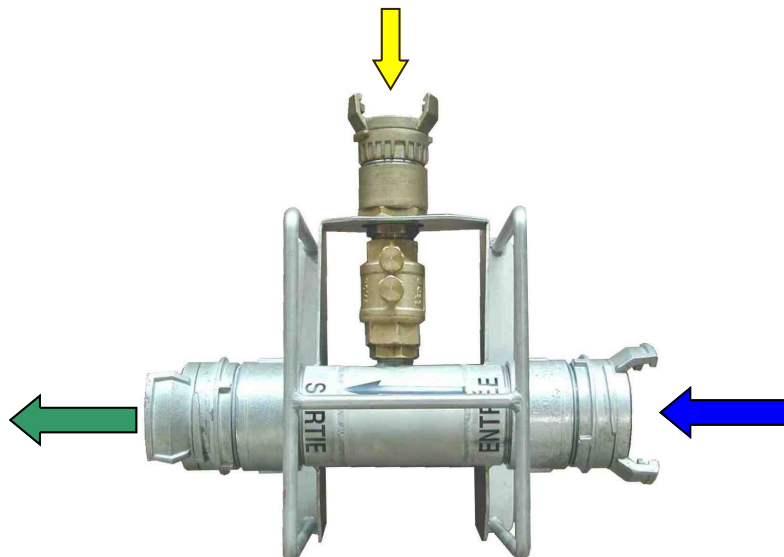
- Connect the suction hose :
 - Hose Ø45 half-rigid.
 - Cramming by motor-driven pump of transfer (Maxi 5 bar).
 - Suction rod DN40.



- Connect the discharge hose :
 - Flexible discharge hose Ø45.



- Connect the injector :
 - Flexible water hose Ø110 inlet and outlet of the injector.
 - Flexible hose Ø45 from the discharge of MPVE.

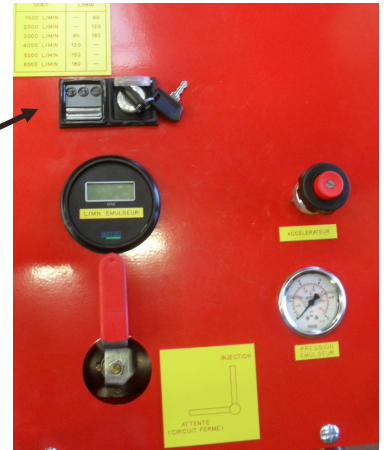


Operating procedure

2- GETTING STARTED :

- Check that the valve **V1** is in position « **WAITING** »
- Start the engine :

Turn the ignition key to start the engine.
Release the key when the engine is running



(If necessary to priming, pumping fuel manually with the lever on the fuel pump)

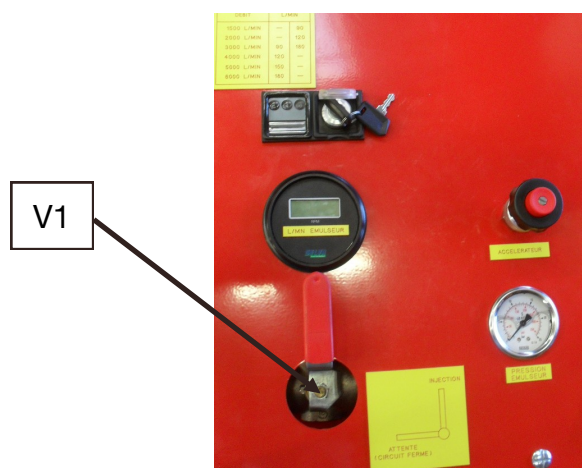
- Refer to the engine instruction manual if necessary.



3- PRIMING :

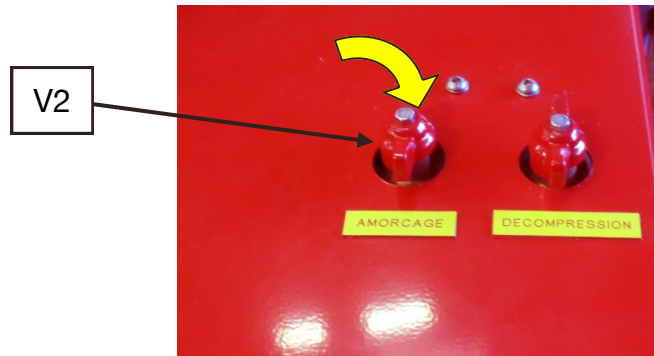
This operation should be carried out at each starting.

- The injection valve **V1** is in position « **WAITING** ».



Operating procedure

- Open the priming valve **V2**.



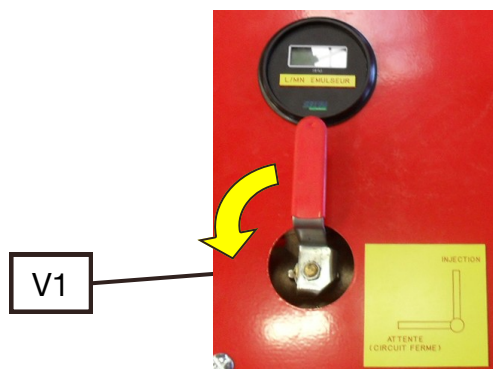
- Close the valve as soon as the foam concentrate exits through the orifice of the drain pipe.

NOTE : For the sake of environmental protection, do not leave the foam concentrate spread itself on the ground: put the hose into a can to recover the product.

4- WAITING POSITION :

In order not to leave the MPVE under pressure when one does not inject, a position of waiting is envisaged so that the product can turn in closed circuit.

- Switch injection valve **V1** on the position « **WAITING** ».
- Put the engine at the idle .



Operating procedure

5- INJECTION :

- Put the injection valve **V1** on the position « **INJECTION** ».
- Set the foam concentrate flow using the accelerator.



- Refer to the abacus opposite :
The foam concentrate flow is displayed in liters per minute.

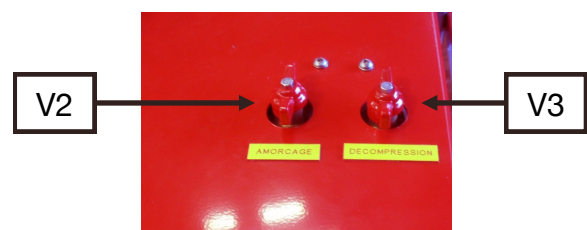
ABAQUE DE FONCTIONNEMENT MPVE 180

POURCENTAGE EMULSEUR	3%	6%
DEBIT	L/MIN	
1500 L/MIN	—	90
2000 L/MIN	—	120
3000 L/MIN	90	180
4000 L/MIN	120	—
5000 L/MIN	150	—
6000 L/MIN	180	—

NOTE : It is important to have open the monitor before switching the injection valve in order not to fill the water line of foam concentrate if it is not necessary.

6- FLUSHING :

- After the intervention, there remains foam concentrate in line injection hose Ø45.
- Also it is necessary to make aspire water to the MPVE to rinse it with the pipe Ø45.
- This operation must be carried out at least during five minutes.
- The injection valve **V1** will be operated several times during flushing to rinse the piping of return.
- Also open the priming valve **V2**
And the decompression valve **V3** to clean the pipes.



Operating procedure

7- FROST PROTECTION :

After the flushing, to draw air to the pump and open all repressions to purge it completely.

8- STOP:

- Put the injection valve **V1** on the position « **WAITING** ».
- Stop the engine.
- Decompress the discharge pipe by opening the valve of decompression **V3**.

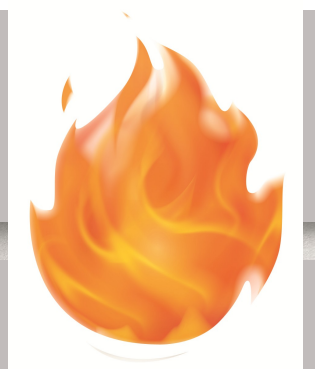


NOTE : As for the pipe of purging, it is preferable to also put the pipe of decompression in a can to recover the product.

9- WARNING :

- **Pump joints are in leather material, it is thus necessary to make an operation per month at least to moisten the leather pump, preventing cracks and leaks.**
- Simplified procedure to moisten the pump : (engine OFF)
- Connect a water pipe on the external suction. (warning : maximum 5 bar), put the valve **V1** on « **INJECTION** », also open the valve **V2**.
- Let the water run during 5 minutes.
- Stop the water.
- Return the valves to their initial positions.
- **Never run the pump without water supply.**

ANNEXES



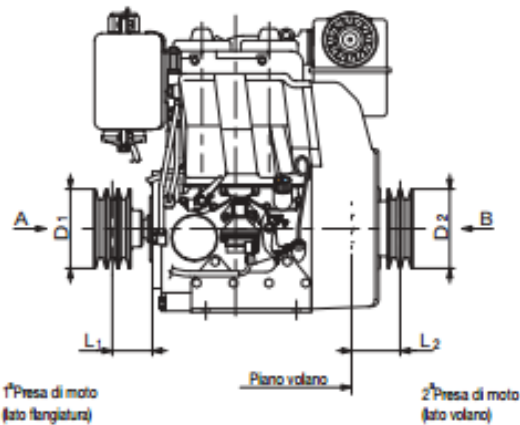


Engine 25LD330-2

Specifications

Cylinders	N.	2
Displacement	cm ³	654
Bore	mm	80
Stroke	mm	65
Compression ratio		19:1
Rating kW/HP	N (80/1269/CEE) ISO 1585	12/16.3
	NB ISO 3046 IFN	11.2/15.2
	NA ISO 3046 ICXN	10.3/14.0
Max. torque	Nm.	32@2400
Max. torque 3 PT.O.	Nm.	18.0
Counterclockwise rotation		
Engine speed - 3 PT.O. ratio		1:0.87
Minimum idling speed r.p.m.		1000
Fuel tank capacity	l	4
Oil consumption	kg/h.	0.007
Oil sump capacity	l	1,8
Min. allowable oil pressure	bar	0.8
Max. allowable inclination for short periods of operation (peak values)		25° (35°)
Vol. of air required for correct combustion @ 3600/3000 r.p.m.	l/min.	1050/875
Vol. of air required for correct cooling @ 3600/3000 r.p.m.	l/min.	11700/9750
Dry weight	kg	60
Recommended battery	V/Ah	12/55
Axial load	(continuous)	kg 100
	(intermittent)	kg 300

Minimum pulley diameters for belt drive



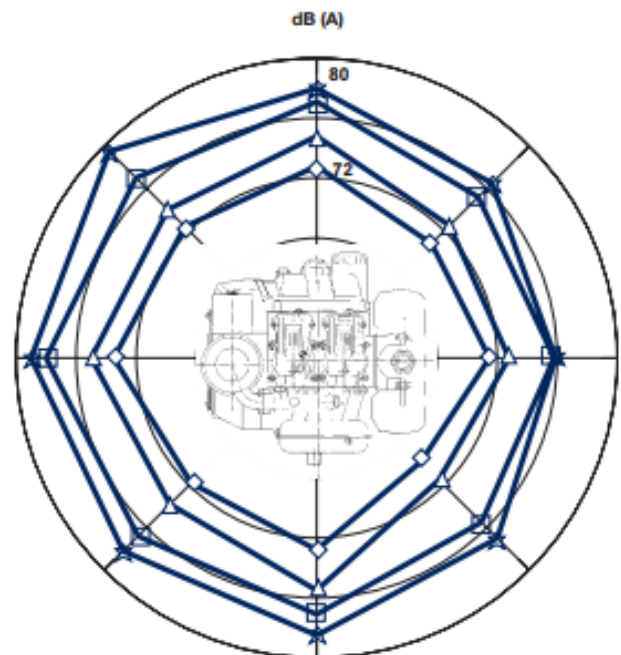
$$D_1 \text{ (mm)} \geq 585 [49 + L_1 \text{ (mm)}] \quad \frac{N \text{ (kW)}}{n \text{ (RPM)}}$$

$$D_2 \text{ (mm)} \geq 1030 [31 + L_2 \text{ (mm)}] \quad \frac{N \text{ (kW)}}{n \text{ (RPM)}}$$



Sound pressure level dB (A)

Sound level polar diagram open field - 7 meters microphone - no load running engine.



1500 RPM 2000 RPM 2500 RPM 3000 RPM



Engine 25LD330-2

BEFORE THE FIRST STARTUP :

- Check for oil in the crankcase.
 - OIL (recommended) : AGIP sint 2000 5W40 (3.2L)
- Priming the fuel pump.
- Check for coolant.
 - COOLANT (recommended) : 50% AGIP antifreeze + 50% water

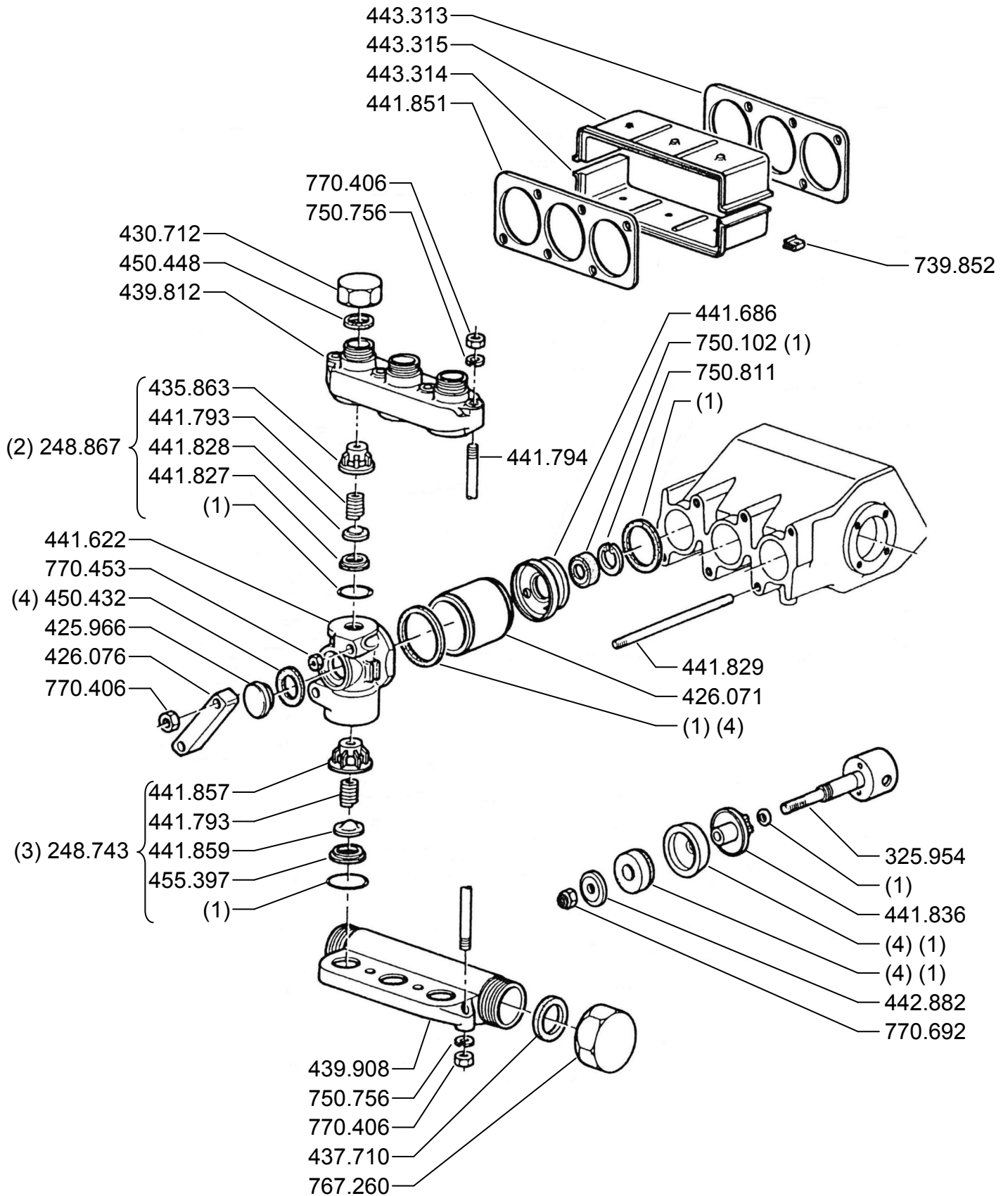
MAINTENANCE :

- Use only original parts LOMBARDINI.
- In case of non compliance with preventive operations, CTD disclaims warranty.
- All these operations must be performed on a cold engine and a flat surface.
- For more details on the operations and the use of engine, refer to the instructions LOMBARDINI

Frequency	Action
First 50 hours	Replace engine oil
Every 10 hours	Check the engine oil Check and clean the air filter Check fuel hoses
Every 250 hours	Replace engine oil
Every 500 hours	Replace the oil filter Replace engine oil Replace the fuel filter Clean the fuel tank Clean the cooling fins
Prior to storing the engine	Clog the exhaust and suction with tape Cover the engine with a plastic tarp Store it on a wooden pallet.
After storage	Clean the air filter Replace engine oil Replace the oil filter Replace the fuel tank Grease cylinders



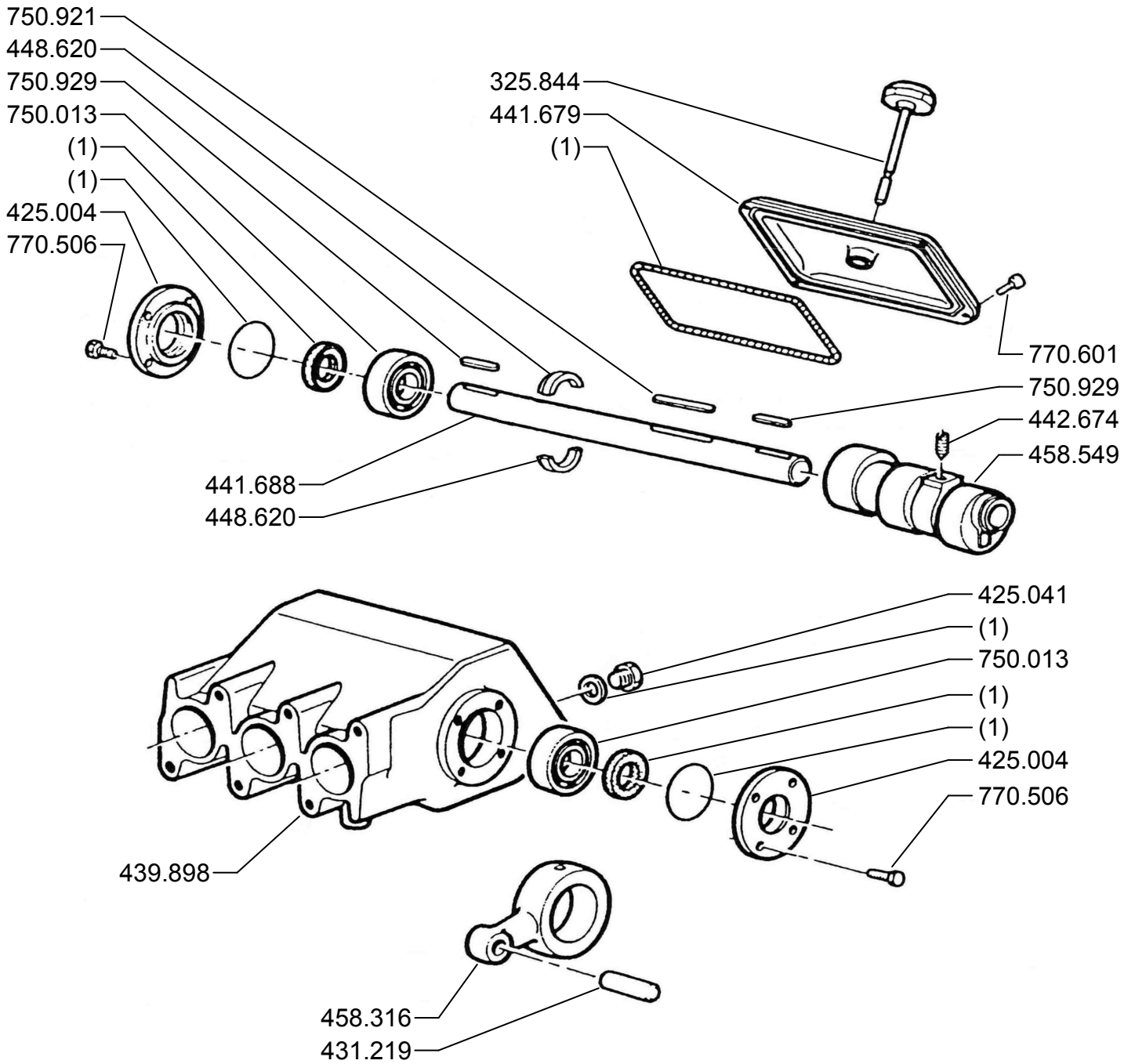
Pump GAMA 160



- (1) Parts being in the small pochet of breakdown service Ref : 248.831
- (2) Set of 3 valves of discharge Ref: 260.891
- (3) Set of 3 suction valves Ref: 224.787
- (4) Set of 3 pistons leathers with ring and joint Ref: 225.297



Pump GAMA 160



(1) Small pocket of repair Ref : 248.831



Maintenance pump GAMA 160

To control every 50 hours

Oil levels :

- Engine

(to refer to the technical booklet of this one)

- Pump (figure 1)

To check the oil level gauge. The right level is when the oil is on the notch (1). Total draining is carried out by unscrewing the stopper (2).

OIL SPECIAL HIGH PERFORMANCE

Type F1 - Réf : 779.026 (can of 2 liters)

Quantity : 1.40 liters

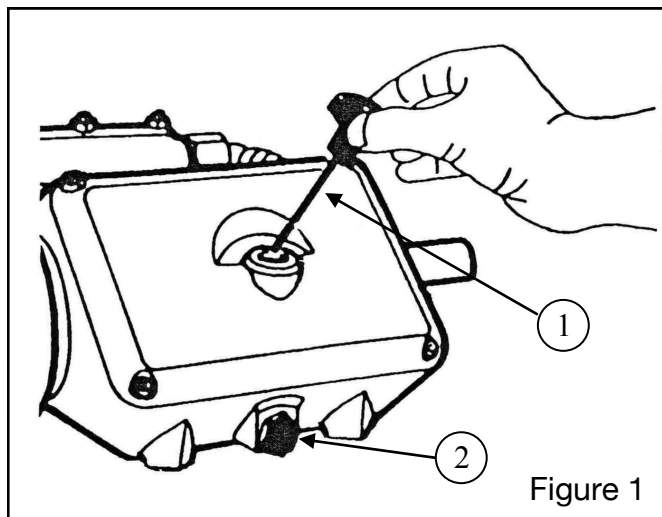


Figure 1

Every 200 operating hours

- To drain and replace the oil of the pump.

- To check the state of the 6 sets of valve (Rep.1 - figure 2).

- To unscrew 4 nuts (2).
- To remove the aspiration's collector (3).
- To remove the pression's collector (4) and these 4 tirans.
- To dismount the 6 sets of valve (1), to clean with the gasoline, and to oil slightly before the reassembly.
- To reassembly the unit.

Every 50 operating hours

- To tighten the cups of pistons by compressing the rings of extension (6) with the nuts nyl-stop (8). For that :

- Unscrew the nuts (9).
- To remove the 3 bars (10).
- To remove the 3 stoppers and seal (11).
- To tighten moderately with a tube wrench of 19 millimeter.

Every 200 operating hours

- To check the wear of the cups of piston (5) and them rings (6) :

- Unscrew the 6 nuts (9).
- To remove the 3 bars (10).
- To remove the 3 stoppers and seals (11) and (12) as well as the 3 cylinders heads (13).
- Unscrew the nuts (8).
- To remove the 3 discs (7), the 3 cuts (5) and the rings of expansions (6).
- To change the defective parts if it's necessary.
- To reassembly the unit after changing the 3 seals nylon (13) between cylinders head and cylinder.

Maintenance pump GAMA 160

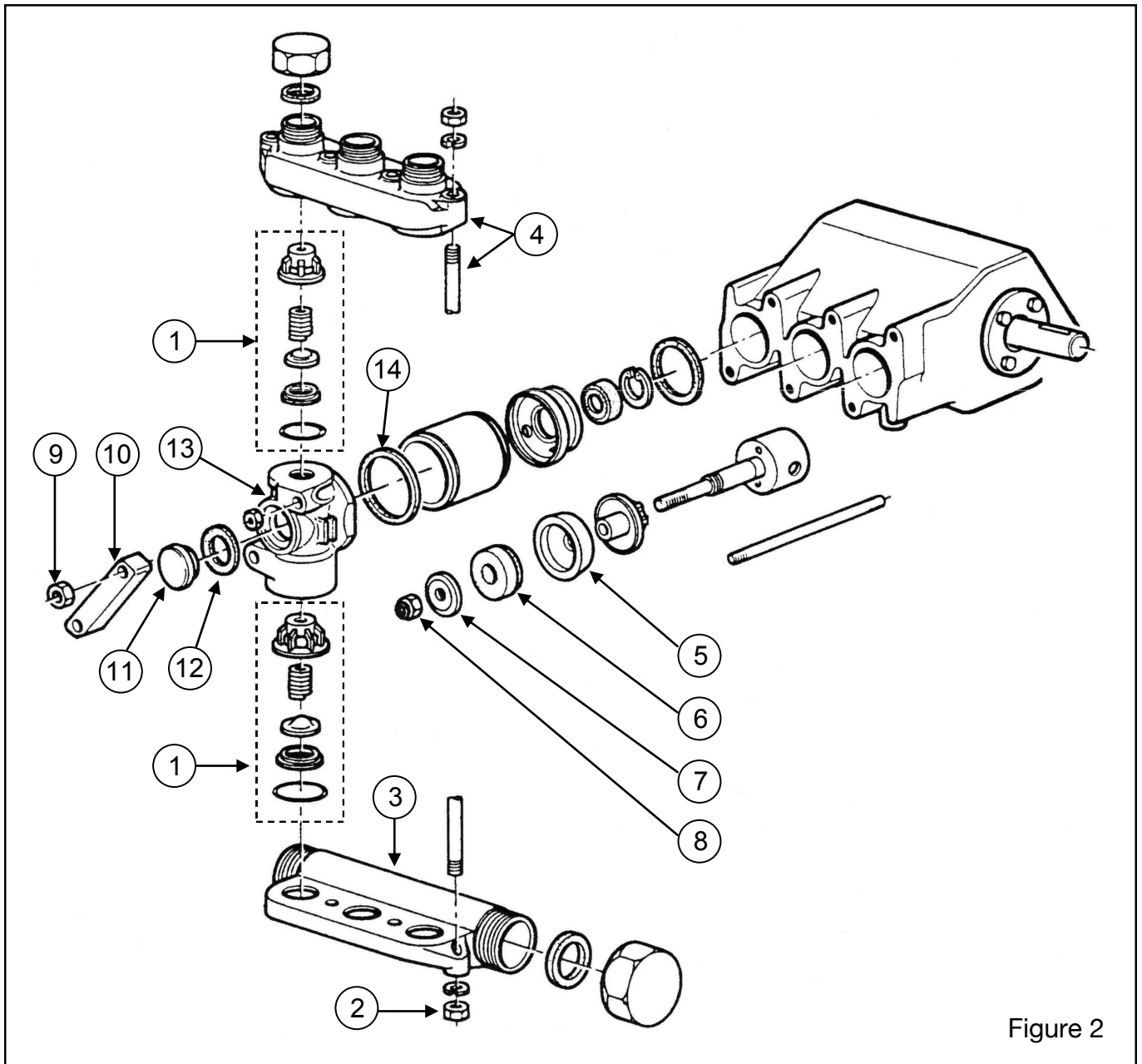


Figure 2

FOOT NOTE :

If you don't use the pump during few weeks, you could see some liquid get out of the pump. But this thing must stop after a few minute. If it persists, to tighten the cups of piston.

PROTECTION AGAINST FREEZING :

To turn pump 2 or 3 minutes to vacuum and purge.



Spare parts

DESIGNATION	QUANTITY	REFERENCE
Diesel engine	1	25LD 330-2
Pump GAMA 160	1	220313
Reducer 1:5 3500/700 Tr/min	1	Z450001
Coupling plate HRC 110 F1610	4	Z410130
Elastic element HRC 100/110	2	Z410135
Hub TL1610 Ø25	1	Z410147
Hub TL1610 Ø25.4	1	Z410148
Hub TL1610 Ø30	1	Z410150
Hub TL1610 Ø35	1	Z410152
Tachometer	1	Z200053
Manometer	1	SF1623008
Safety valve 16 bar	1	MGP263342
Elastic studs	4	Z410005
Accelerator	1	Z201502
Starter key	1	Supplied with engine
Pump oil GAMA	1	779026
Pump gasket sets	1	248831
Battery 55AH 420A	1	Z200055
Black handle	4	MH054025
Wheel Ø250	2	Z022501



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