



Fire-fighting



SALAMANDRE Range

**USER MANUAL
SALAMANDRE 360**



Version 3
10/05/16

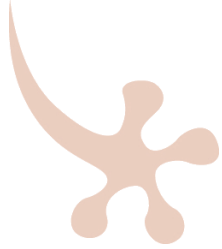
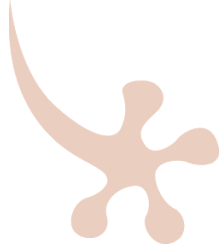


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Performances

THE PERFORMANCE OF SALAMANDRE MOTOR PUMPS

depends on the following criteria:

1 - The **"MINIMUM"** flow range (in litres/minute) is defined by the minimum flow required to ensure that regulation is stable.

2 - The **"MAXIMUM"** flow ranges are given according to:

- Truck' water pump performance
- The possibilities for transit in supply pipes of **Ø 100 - 125 - 150**.
- The **"MAXIMUM"** SALAMANDRE volumetric pump performances.

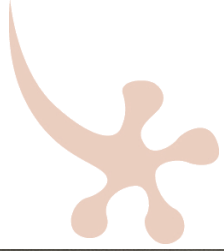
3 - The flows and concentrations correspond to the use of foaming agents.

SALAMANDRE 360

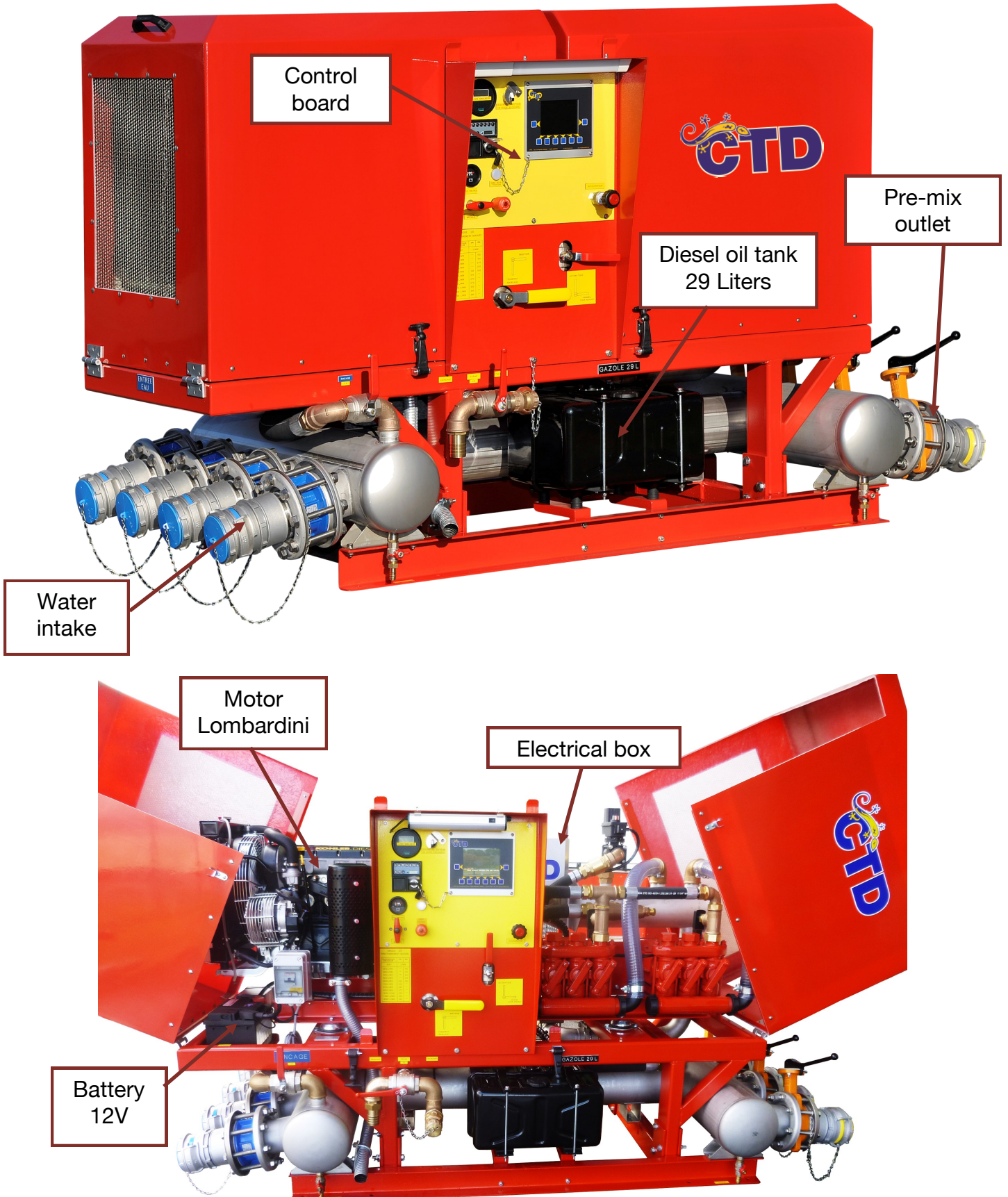
Type of concentration keys		1 %	2 %	3 %	4 %	5 %	6 %
Pre-mix outlet Flow rate	Minimum	2400	1200	800	600	500	500
	Max DN 150	12000	12000	12000	9000	7200	6000

PRESENTATION
OF THE SALAMANDRE

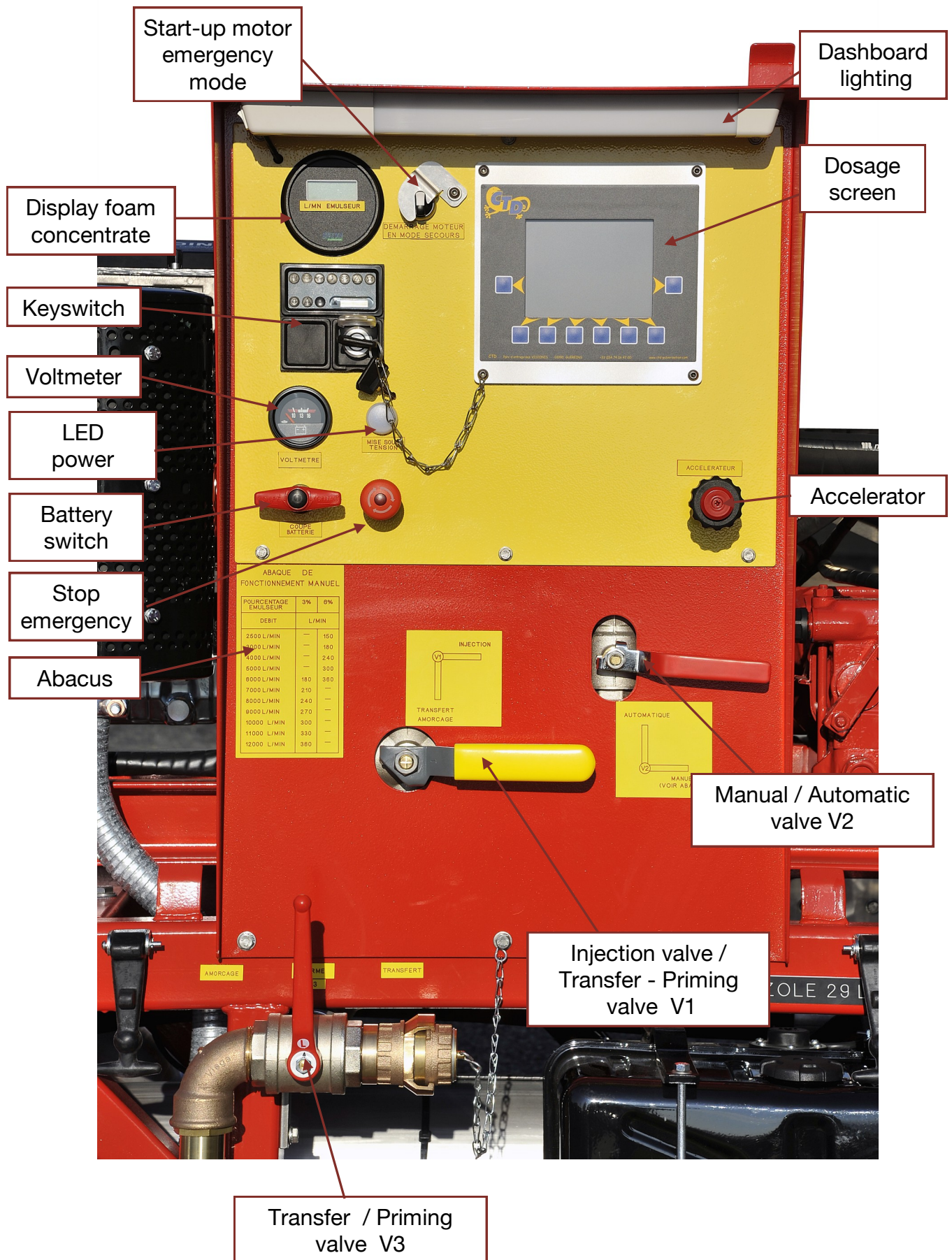


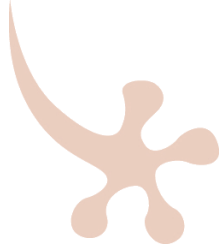


Presentation of the SALAMANDRE 360

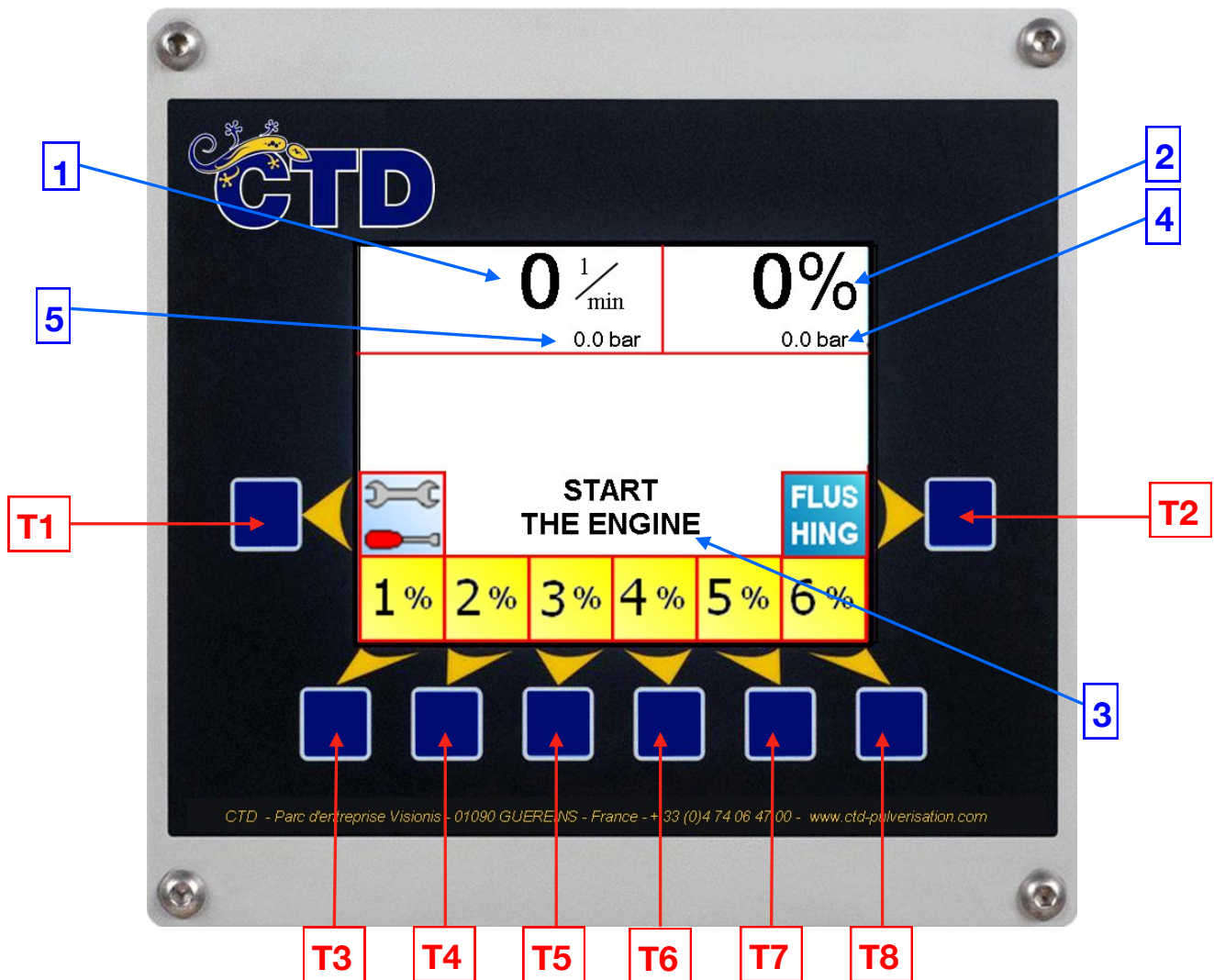


Presentation of the control board





Presentation of the screen



KEYS FOR STARTING UP AND USING THE UNIT

T1 Key to access the maintenance screen

T2 External suction key

T3 à T8 Intervention selection keys (Automatic selection of concentration)

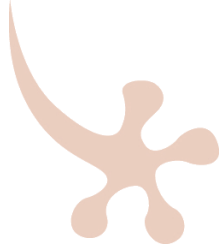
DATA DISPLAY

- 1 Flow in Liters/minute
- 2 Concentration in%
- 3 Intervention information
- 4 Injection pressure
- 5 Water pressure

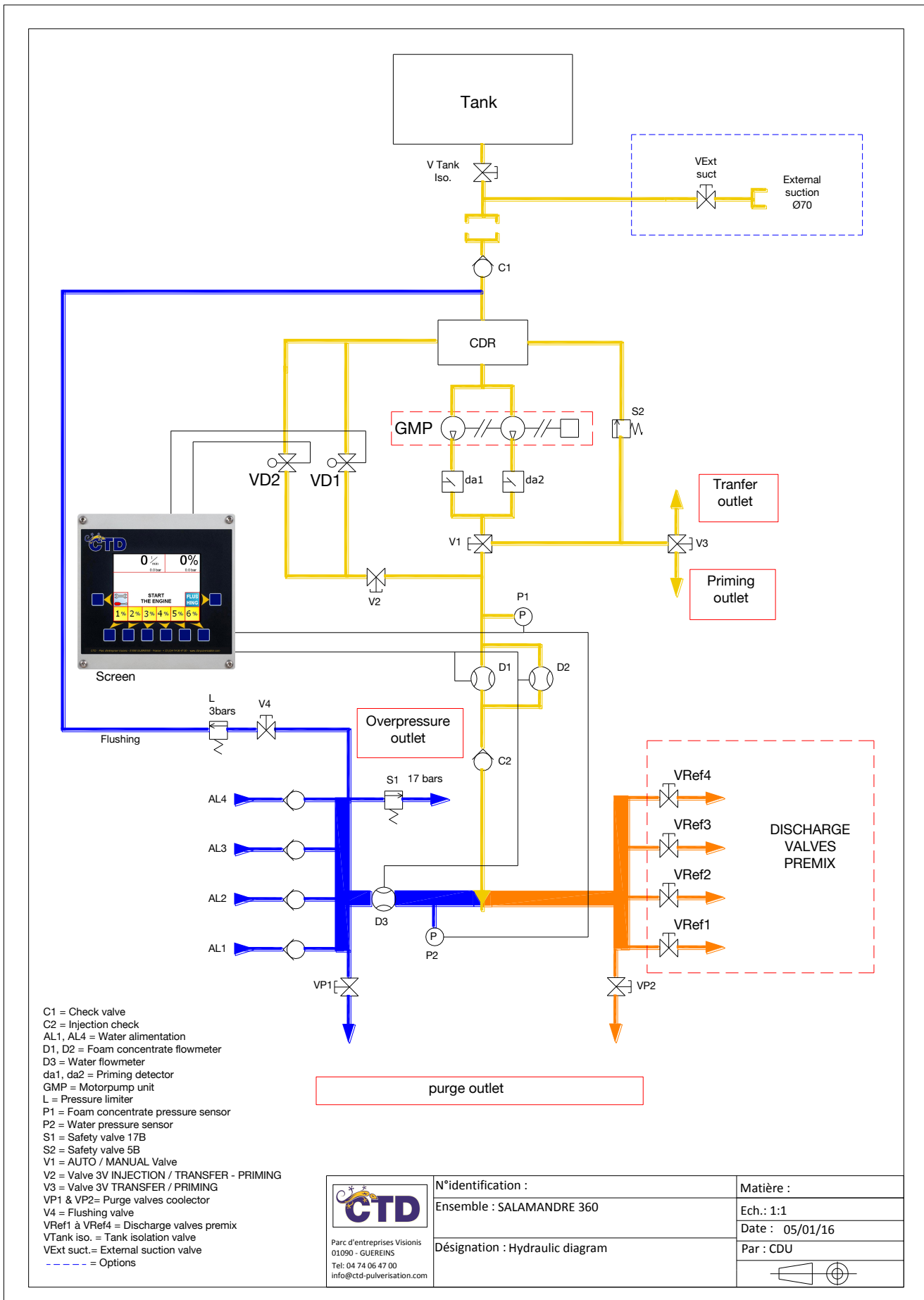
HYDRAULIC

DIAGRAM





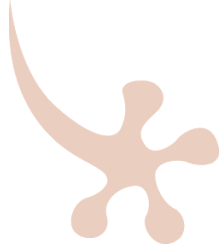
Hydraulic diagram



PROCEDURE

OF USE

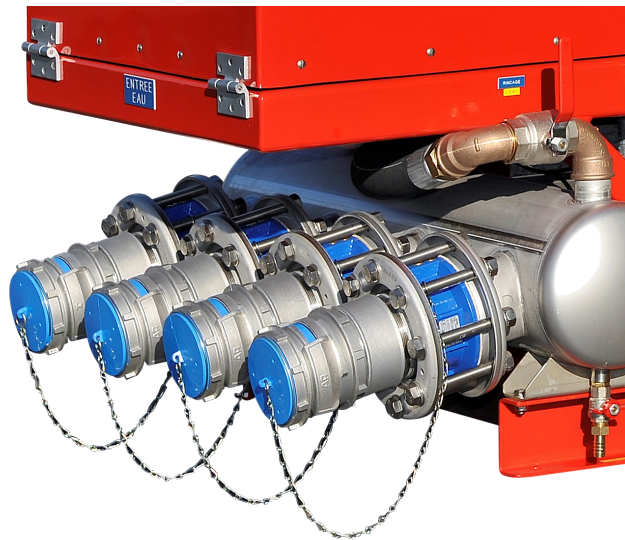




Procedure of use

1 – WATER SUPPLY :

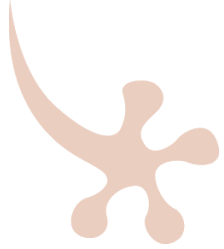
- Supplying water to the collector of the SALAMANDRE 360



2 – POWER :

- Turn the battery switch **[1]** a quarter turn.
- The light power **[2]** lights..
- The voltmeter indicates the battery voltage **[3]** .
- The screen is started automatically **[4]** .





Procedure of use

3 – CHOICE OF SUCTION :

- Open either the valve of the tank or the external suction valve

4 – STARTING THE ENGINE :

- Start the engine :

Turn the key one notch

Wait a few seconds (warm)

Turn a second notch to start the engine

Release the key when the engine is running



- Accelerate the engine to bottom

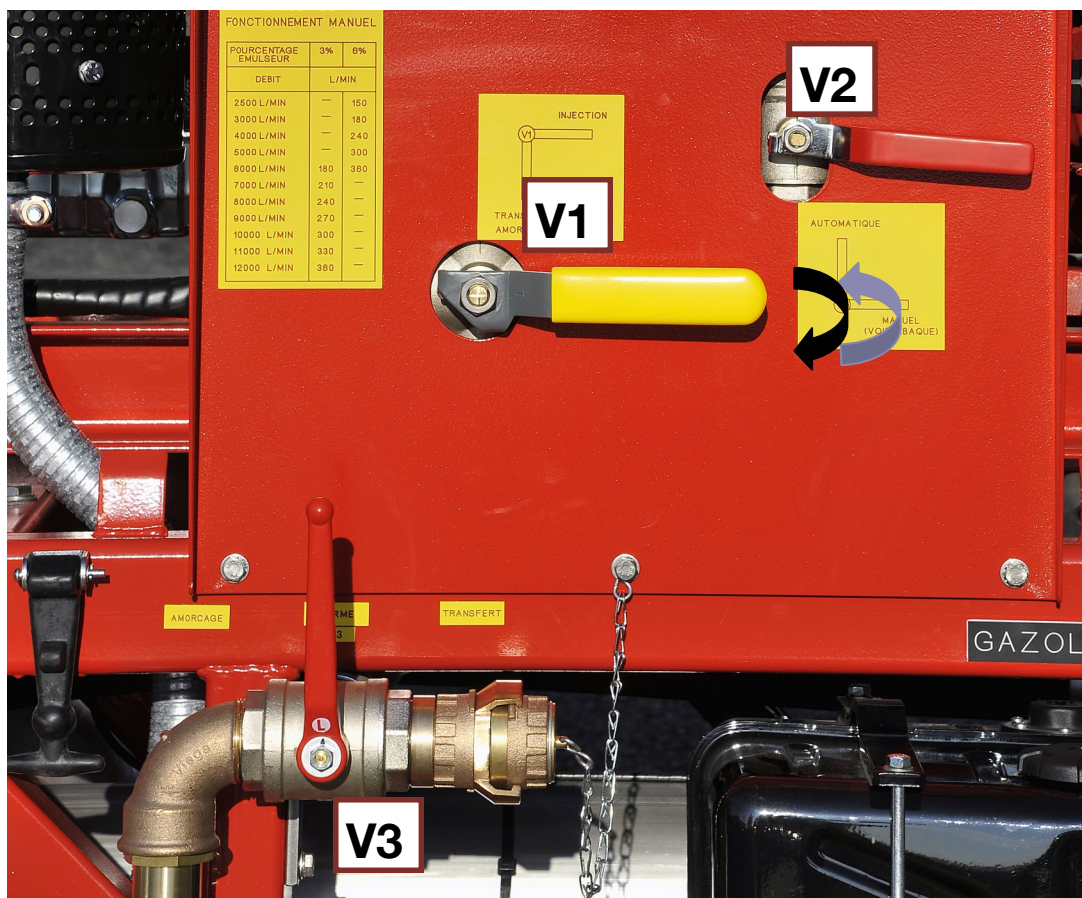


Note: The screen says "speed up the engine thoroughly" as it has not reached full speed.

Procedure of use

5 – PRIMING :

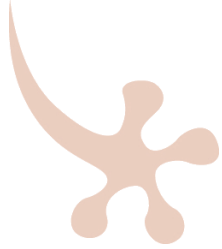
- Check that the valve **V3** is in position « PRIMING ».
- Place the valve **V1** in position « TRANSFER - PRIMING ».
- When the liquid runs out under the Salamandre, the priming is finished
- Replace the valve **V1** in position « INJECTION ».



- The system is now ready to dose.

NOTE : The screen says « think to priming » until the operation was not realised. A beep will sound to alert the user.

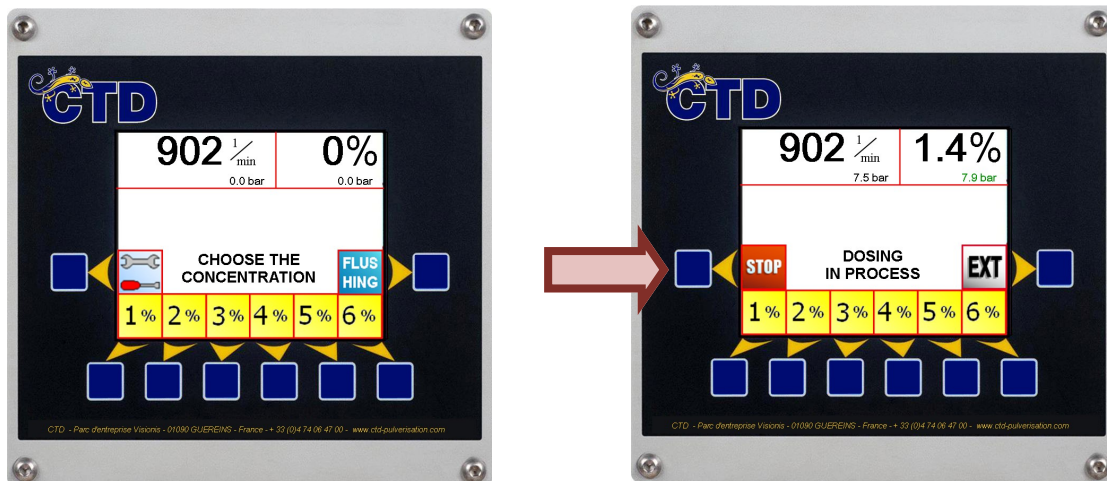
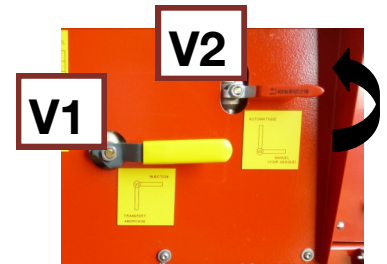
If the Salamandre is not priming within 30 seconds after starting the engine it stops to prevent the pump from running dry.



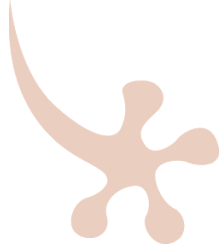
Procedure of use

6 – SUCTION TANK :

- Check that the valve **V2** is in position « **AUTOMATIC** ».
- Open the output pre-mixtures of the collector.
- A flow is displayed on the screen .
- Select a concentration for starting the dosage.



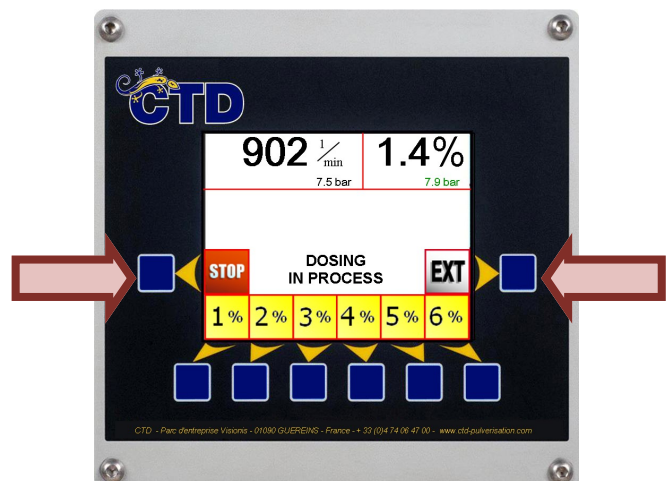
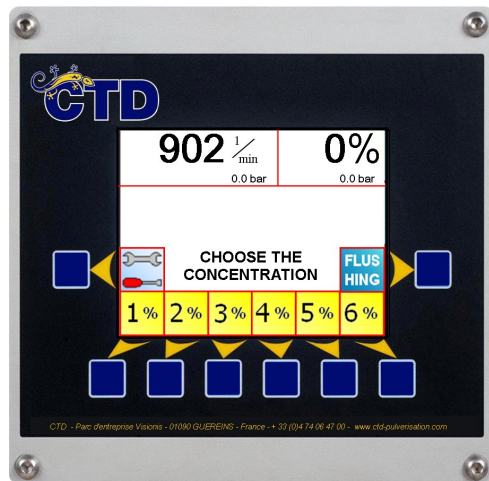
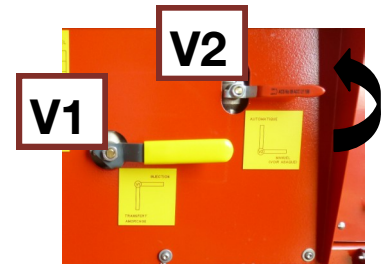
- Dosage begins if the flow rate is greater than 100 L/min
- The screen display « flow rate is too weak » if the ratio water flow rate / foam concentrate flow rate is less than the minimum performance of the dosage system (24 L/min of foam concentrate).
- The screen display « flow rate is too strong » if the ratio water flow rate / foam concentrate flow rate is strong that the maximum performance of the dosage system (360 L/min of foam concentrate).
- At any time, if the system beeps, a fault is detected and displayed :
- « Think to priming » : the pump is defused. Carry out the procedure of priming again.
- « Default injection » : the injection pressure remained below the water pressure for more than 25 seconds. Try again dosed. If the problem persists, contact your service representative.
- To stop the dosage press « **STOP** ».



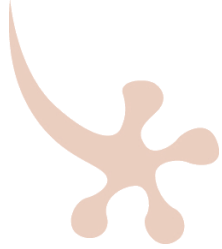
Procedure of use

7 – EXTERNAL SUCTION :

- Connect the suction hose on external suction link and open the valve.
- Check that the valve **V2** is in position « **AUTOMATIC** ».
- Open the output pre-mixtures of the collector.
- A flow is displayed on the screen .
- Select a concentration for starting the dosage.



- Press the button « **EXT** » (icon becomes green). This action differentiates the source of suction in the newspaper interventions.
- Dosage begins if the flow rate is greater than 100l/min
- The screen display « flow rate is too weak » if the ratio water flow rate / foam concentrate flow rate is less than the minimum performance of the dosage system (24 L/min of foam concentrate).
- The screen display « flow rate is too strong » if the ratio water flow rate / foam concentrate flow rate is strong that the maximum performance of the dosage system (360 L/min of foam concentrate).
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- To stop the dosage press « **STOP** ».

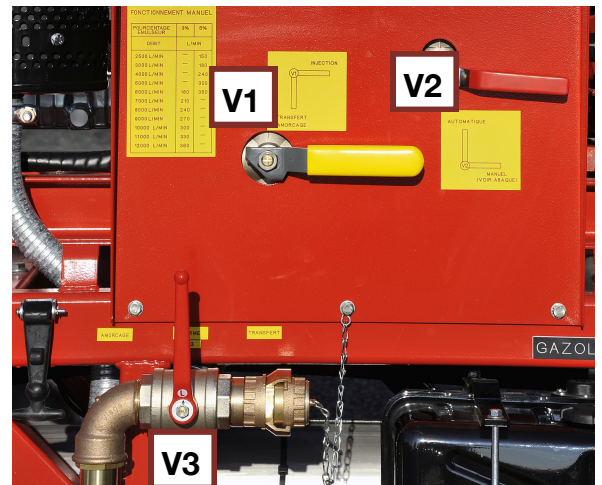
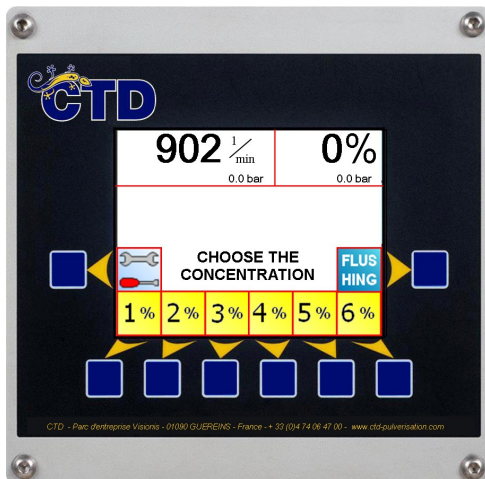
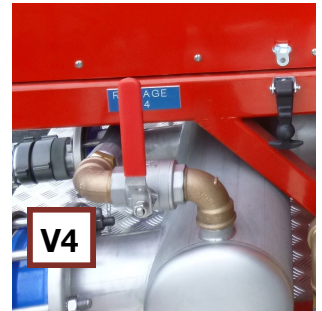


Procedure of use

8 – FLUSHING :

- The screen displays "think flush" until the flushing operation have been carried out as follows:

- Open the flushing valve **V4**.
- Ensure that the outputs premixes are « OPEN ».
- Press the button « **RINCING** » and « **VALIDATE** »



- At any time, if the outputs premixes are closed and the water flow drops to 0, flushing is put on hold. The screen displays "water flow is too weak".
- Flushing is an automatic cycle. However, to flush the priming circuit, proceed as follows during the cycle:
- Switch the valve **V3** in position « **PRIMING** ».
- Switch the valve **V1** in position « **TRANSFER - PRIMING** » to flush the priming circuit (10 seconds is enough).
- When clean water flows under the rocks, flushing of the priming circuit is completed.
- Replace the valve **V1** in position « **INJECTION** ».

When the screen displays « **FLUSHING OK** », flushing the injection circuit is completed.

- Close the flushing valve **V4** .

Procedure of use

9 – MANUAL MODE :

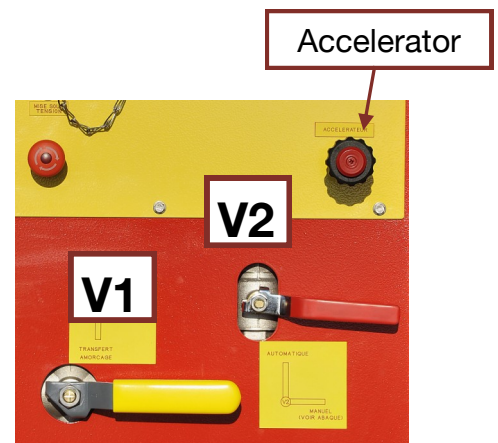
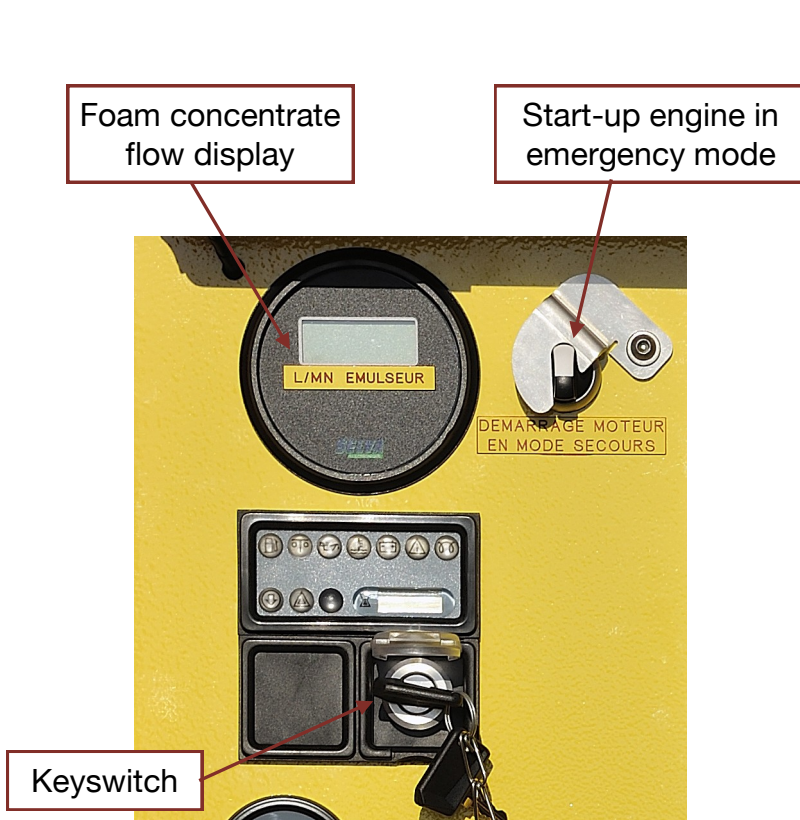
In case of malfunction of the automatic dosing, it is possible to perform the dosing in manual mode.

Adjusting the concentration is obtained as a function of engine acceleration.

The abacus is used to find the amount of foam concentrate required based on water flow.

Adjusting the amount of foam will be by motor acceleration and can be adjusted using the theoretical speed displayed.

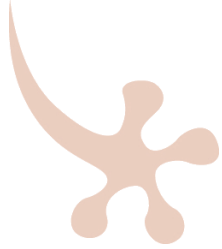
- Switch button « **ENGINE STARTING IN EMERGENCY MODE** » then start the engine with the key.
- Switch the valve **V2** in position « **MANUAL** ».
- Check that **V1** is on « **INJECTION** ».



ABAQUE DE FONCTIONNEMENT MANUEL

POURCENTAGE EMULSEUR	3%	6%
DEBIT	L/MIN	
2500 L/MIN	—	150
3000 L/MIN	—	180
4000 L/MIN	—	240
5000 L/MIN	—	300
6000 L/MIN	180	360
7000 L/MIN	210	—
8000 L/MIN	240	—
9000 L/MIN	270	—
10000 L/MIN	300	—
11000 L/MIN	330	—
12000 L/MIN	360	—

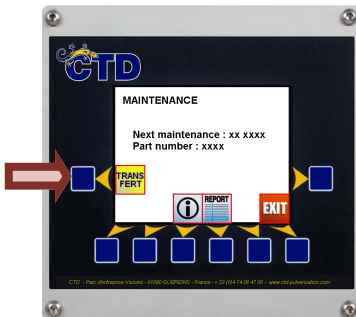
Using the tachometer and the abacus above-cons, set engine with the accelerator in order to obtain the value Flow of foam desired.



Procedure of use

10 – TRANSFER :

Select the transfer aid available from the Maintenance screen
Key **[T1]** then press key « **TRANSFER** »

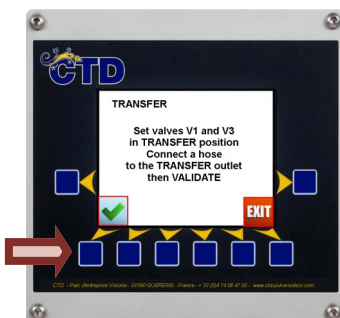
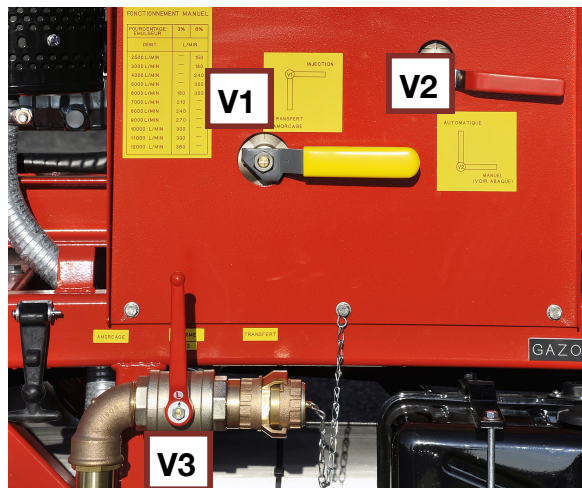
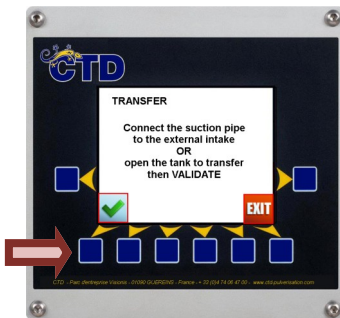


Connect the suction hose on external suction link

or

open the tank to transfer

- Connect a hose to the output TRANSFER
- Switch valves **V1** and **V3** on the position « **TRANSFER** »
- Then « **VALIDATE** ».



- Start the engine.
- Once the transfer is complete, Proceed with flushing in the following manner :
- Open the flushing valve **V4** and press the key « **TRANSFER** »

- When clean water flows out the transfer, stop the engine.

- Closed the flushing valve **V4**.

- Press the key « **EXIT** »

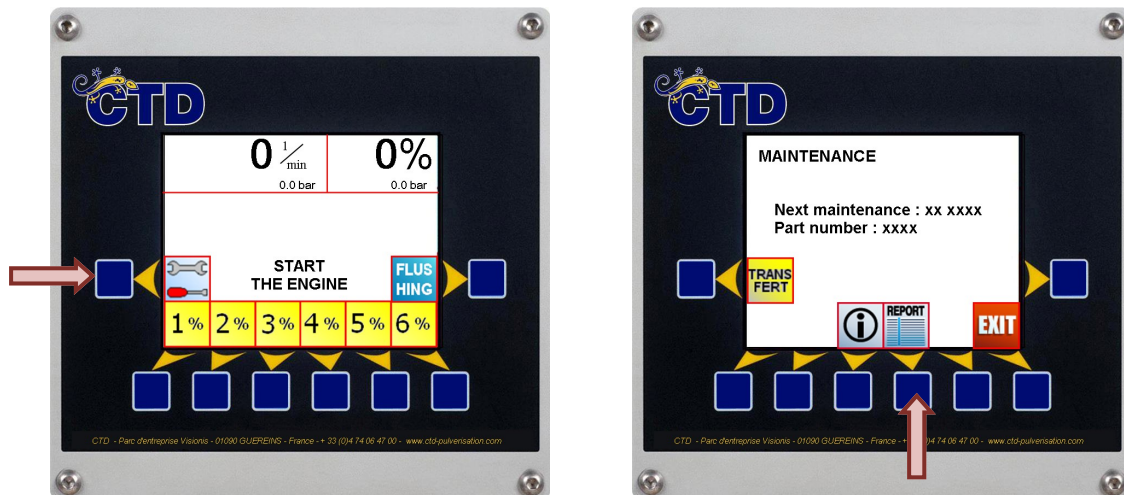


- Switch back valves **V3** on « **PRIMING** » and **V1** on « **INJECTION** ».

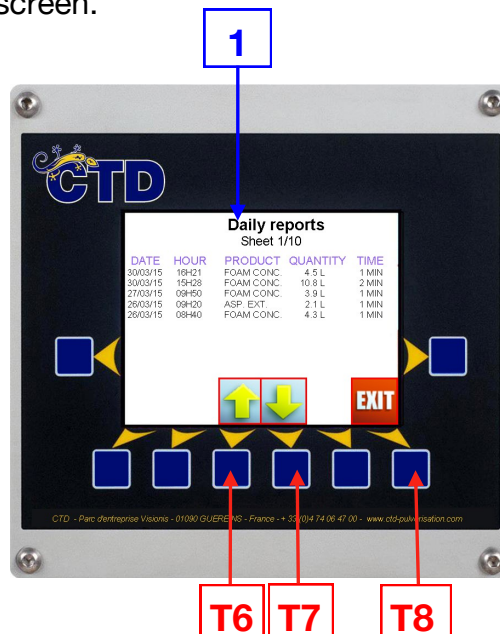
Use of the screen

11 - JOURNAL OF OPERATIONS :

- To access to the journal of operations, press the key « **MAINTENANCE** » then press the key « **REPORT** ».



- This button provides access to the historical past 120 interventions :
- Press the arrows to scroll through the pages, and the "EXIT" key to return to the Maintenance screen.



STARTING AND USING BUTTON

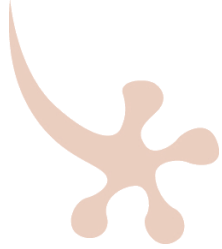
T6 Key « PREVIOUS PAGE ».

T7 Key « NEXT SUIVANTE ».

T8 Key « EXIT » = Return to the maintenance screen.

INFORMATION DISPLAY ON THE SCREEN

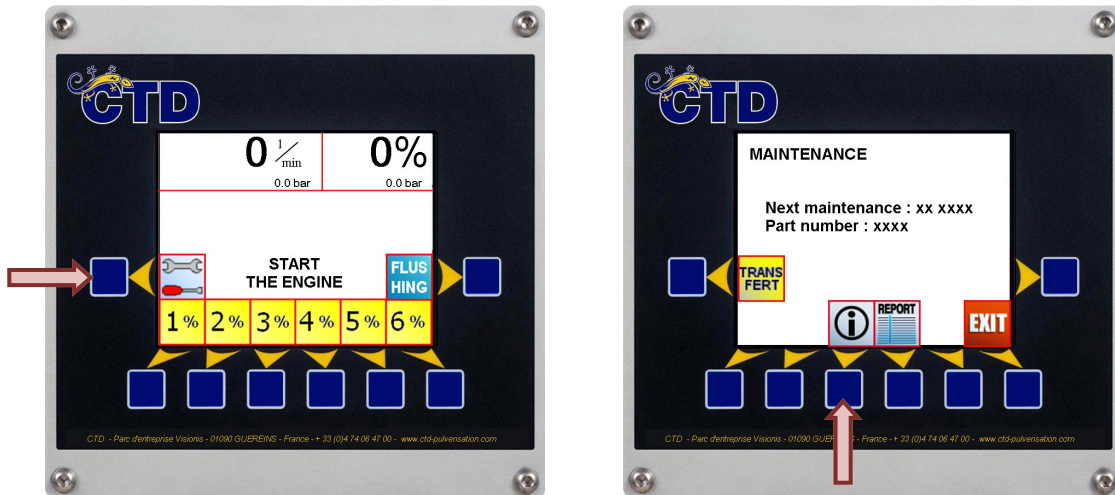
1 Daily information (Day - Hour - type of used additive - Quantity - Internention time)



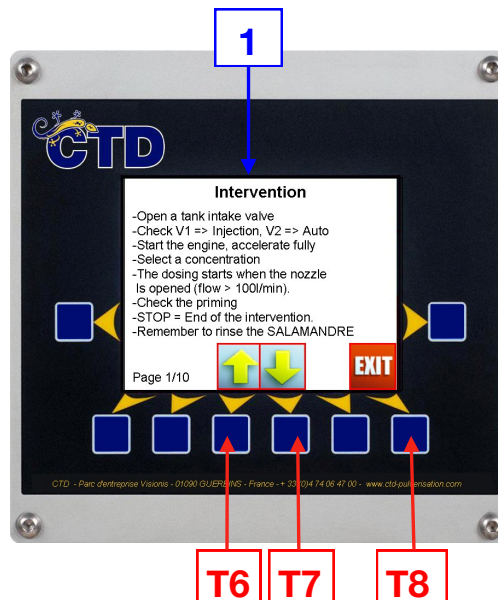
Use of the screen

12 - INFO MENU :

- To access the Info menu, press the key « **MAINTENANCE** » then press the key « **i** ».



- This button provides access to the user manual synthetic :
- Press the arrows to scroll through the pages, and the "EXIT" key to return to the Maintenance screen.



STARTING AND USING BUTTON

T6 Key « PREVIOUS PAGE ».

T7 Key « NEXT SUIVANTE ».

T8 Key « EXIT » = Return to the maintenance screen.

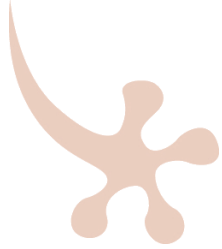
INFORMATION DISPLAY ON THE SCREEN

1 Instructions for use

MAINTENANCE

PROCEDURE

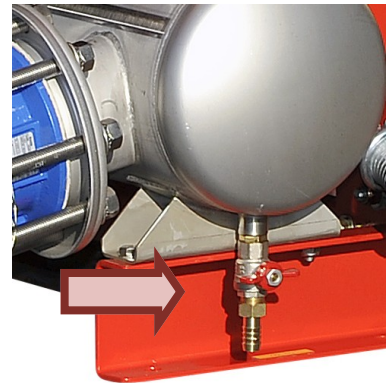




Maintenance procedure

13 - FROST (After flushing) :

- Check that the valve of the tank and the external suction valve are closed.
- Switch the valve **V1** in position « **TRANSFER - PRIMING** ».
- Switch the valve **V3** in position « **PRIMING** ».
- Start the engine.
- Expect that more water flows under the rocks.
- Turn off the engine.
- Open the valves located under the collector to purge.

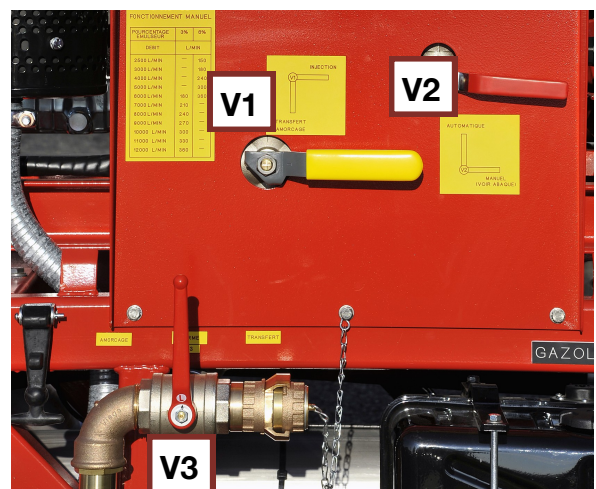


14 - WARNING :

- Joints of pumps are leather : the system must run at least once a month to pump seals that are wetted by water, otherwise they dry, creating leaks.

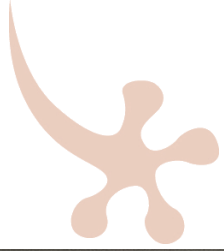
- Simplified procedure to moisten the pump: (Salamandre engine shutdown)
- Connect a water hose (maxi 5 bar) on the external suction.
- Switch the valve **V1** on « **TRANSFER - PRIMING** ».
- Switch the valve **V3** on « **PRIMING** ».
- Allow water to run for 5 minutes.
- Shut off the water.
- Return the valves to their initial positions.

- Never run the pump dry.

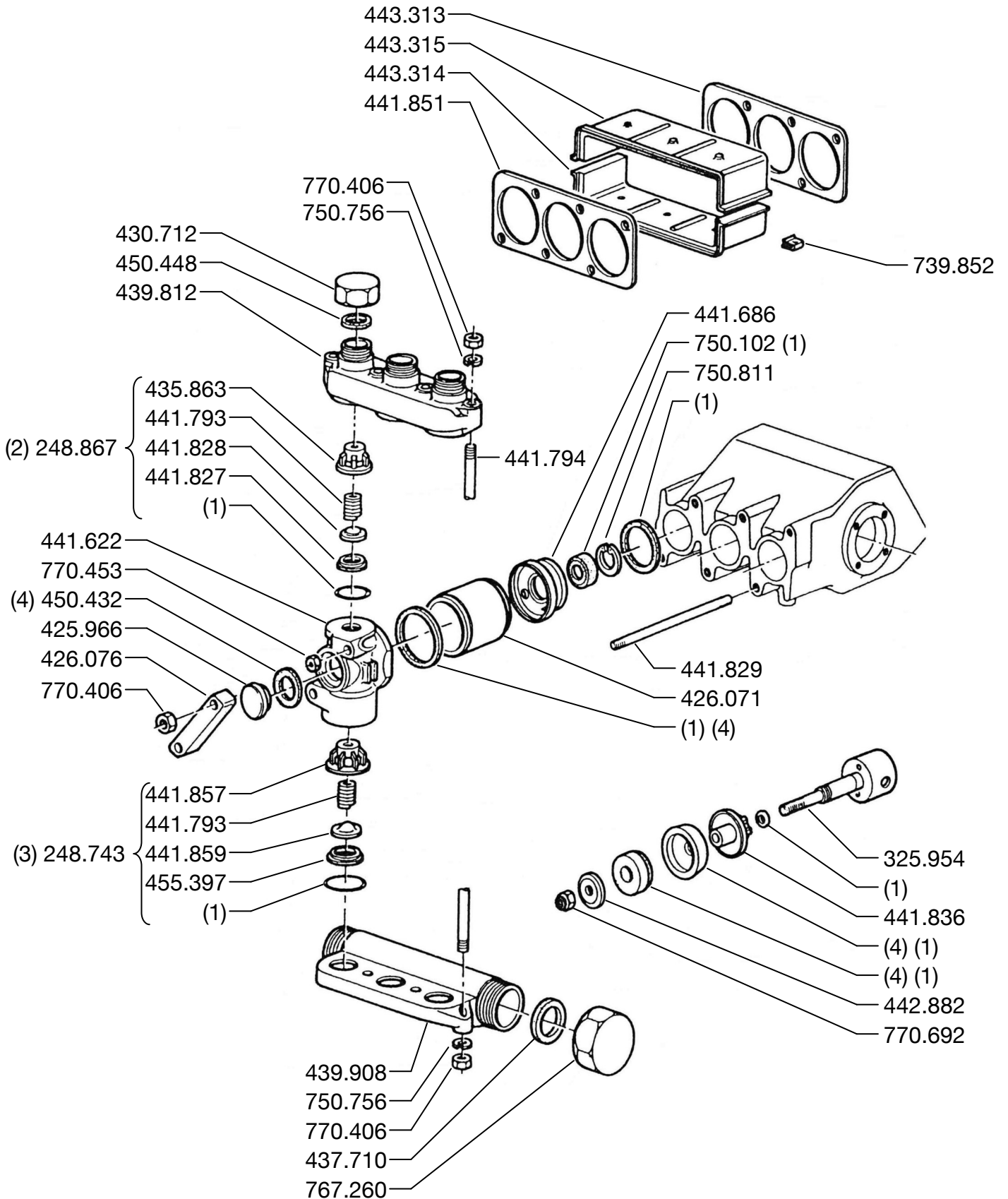


APPENDICES

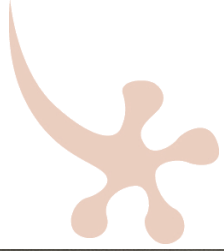




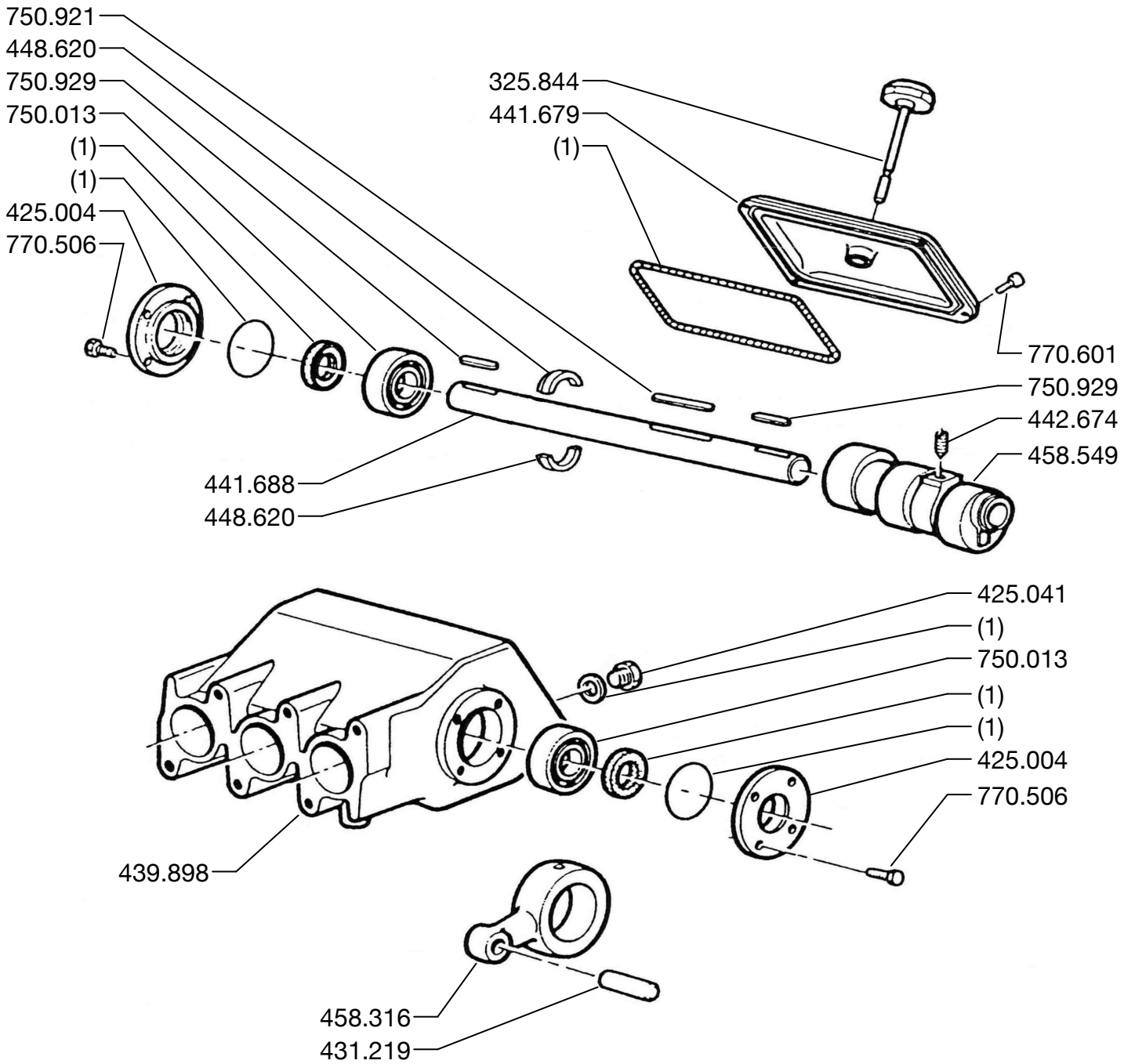
Pump GAMA 160



- (1) Parts being in the small pocket of breakdown service Ref: 248.831
- (2) Together of 3 valves of complete repression Ref: 260.891
- (3) Together of 2 suction valves complete Ref: 260.890
- (4) Together 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)

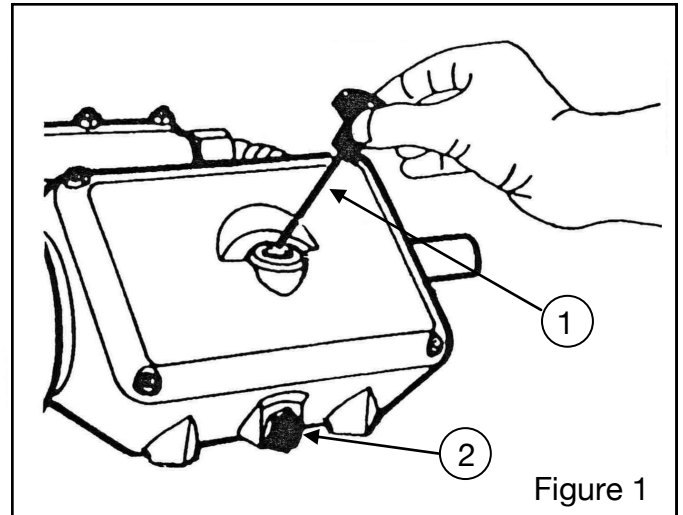
- Pump (figure 1)

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



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 millimetre.

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

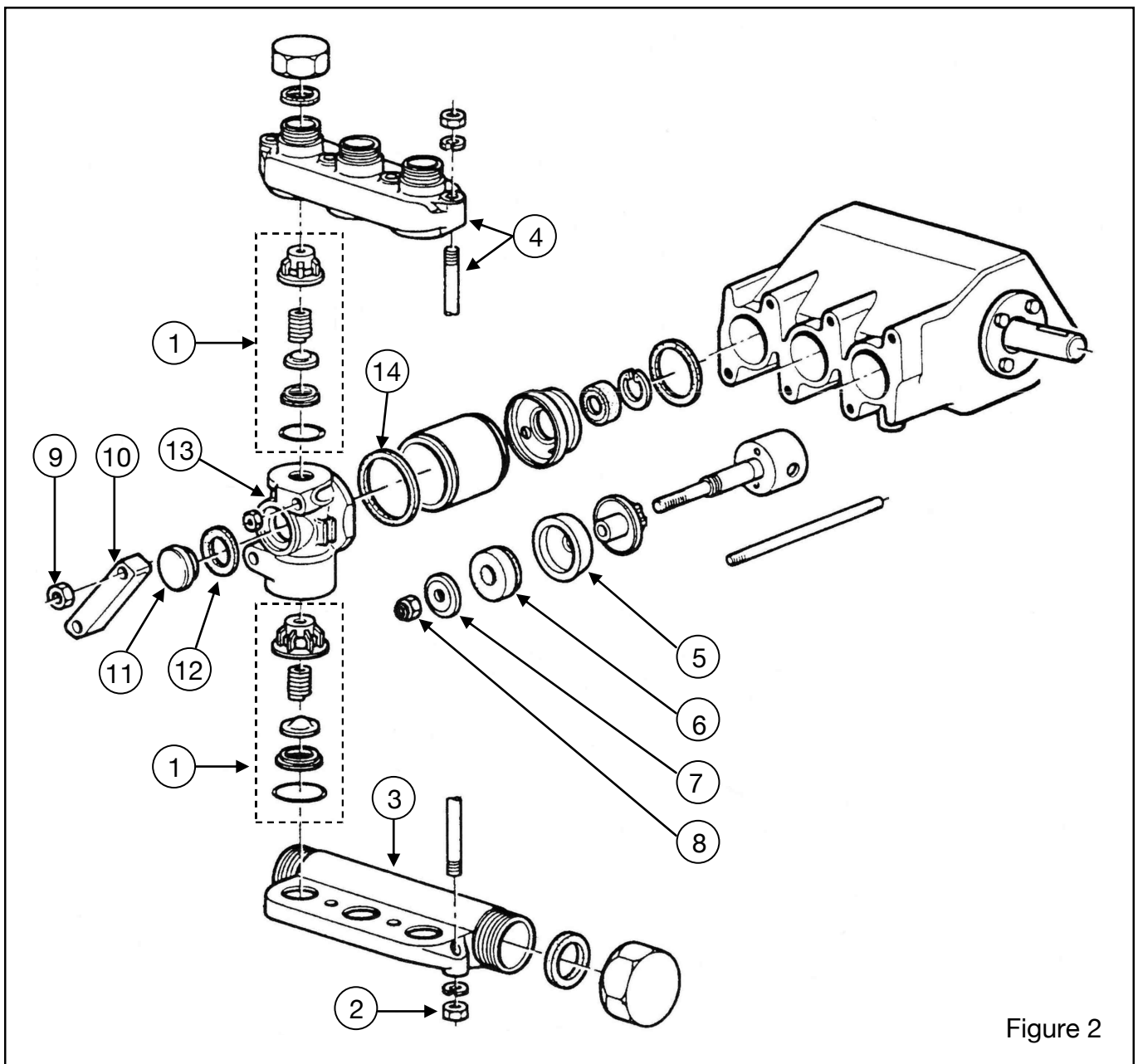


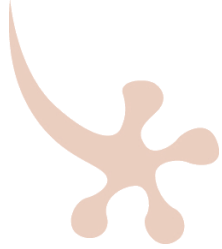
Figure 2

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 :

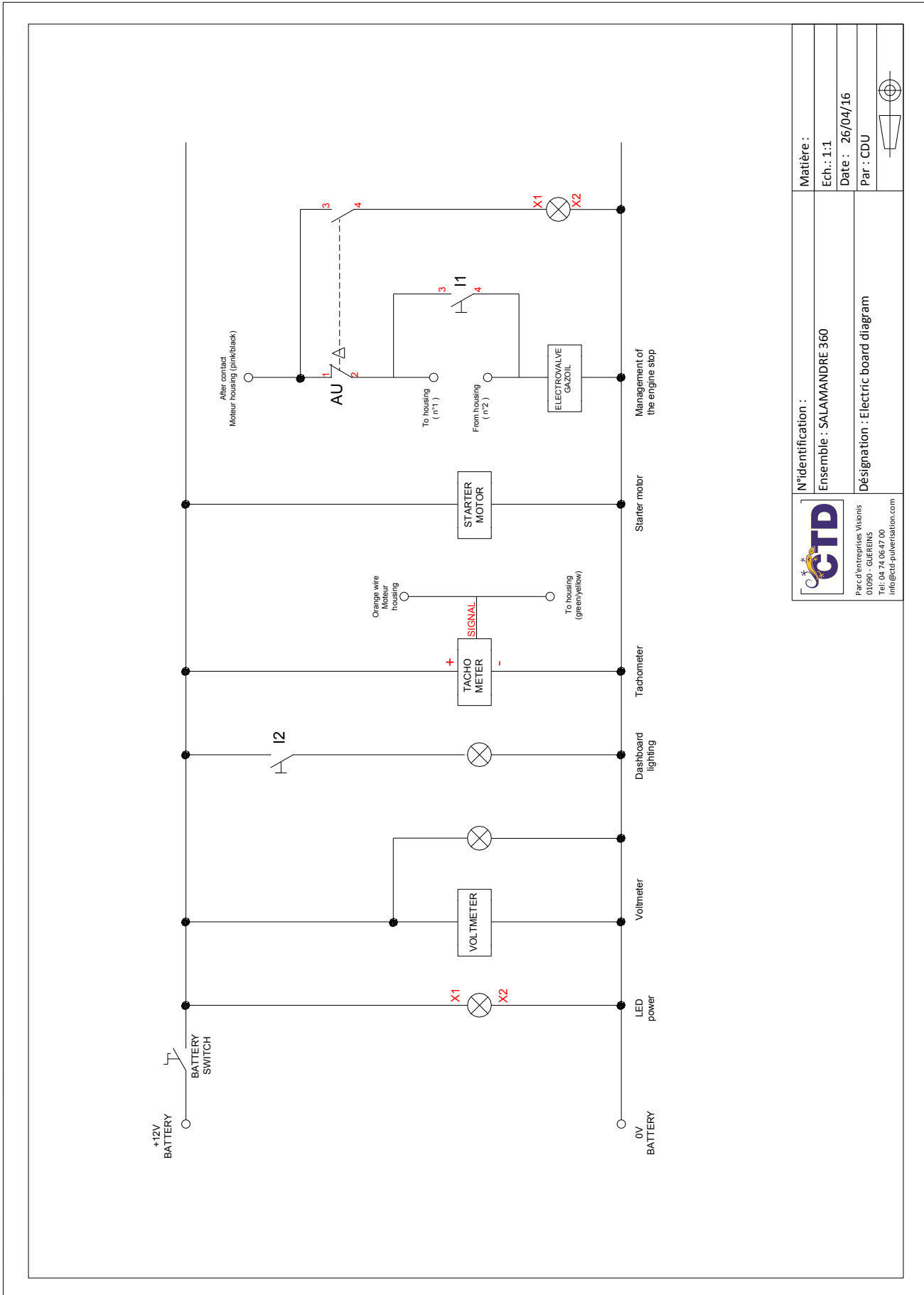
To turn pump 2 or 3 minutes to vacuum and purge.


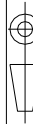


Spare parts

DESIGNATION	QUANTITY	REFERENCE
FUEL TANK 29L	1	LOM0003
FUEL LEVEL GAUGE	1	LOM0005
MOTOR 35CV	1	LOM-LDW1404FOCS
PUMP GAMA 160	2	220313
COUPLING PLATE HRC110 F1610	2	Z410130
COUPLING PLATE HRC130 F1610	2	Z410131
HUB TL1610 Ø40 HRC 110/130	1	Z410154
HUB TL1610 Ø30 HRC 110/130	3	Z410150
ELASTIC ELEMENTS HRC 125/130	1	Z410136
ELASTIC ELEMENTS HRC 100/110	1	Z410135
SILENT BLOCKS	4	Z410003
BATTERY	1	Z2000055
ACCELERATOR	1	Z201502
TACHOMETER + HORAMETER	1	Z200053
SCREEN	1	Y200129
DASHBOARD LIGHTING	1	Z200008
BATTERY SWITCH	1	Z200163
VOLTMETER 12V	1	SOP580012
REGULATION VALVE	2	AR465442
SAFETY VALVE 2" - 5 BAR	1	MGP2650601
SAFETY VALVE 2" - 8-20 BAR	1	MGP265060
PRESSURE LIMITER 1"1/2 - 3 BAR	1	Z430002
INJECTOR	1	Y110002
FLOW DETECTOR	2	Z220215
FOAM CONCENTRATE FLOWMETER DN25	2	715593
ELECTRONIC CARD	1	U070010
PRESSURE SENSOR	2	Z220202
WATER FLOWMETER	1	Z220019

Electronic board diagram



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	Ensemble : SALAMANDRE 360	
	Désignation : Electric board diagram	
Matière :	Ech.: 1:1	Date : 26/04/16
		Par : CDU
		



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