



INSTRUCTION MANUAL

CYCLOMIX™

CYCLOMIX™ PH

MIXING MACHINE

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Modif.: "Use the auto-wash" added (page 25)

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ADDITIONAL DOCUMENTS :

<u>Annexes</u>	Pneumatic and electric diagrams Mixing ratio chart	Doc. 573.171.120
<u>Spare parts</u>	Cyclomix or Cyclomix PH	Doc. 573.344.050 or Doc. 573.358.050
	Color changer	Doc. 573.188.050
	Flow switch	Doc. 573.320.050
	AIRMIX filter	Doc. 573.253.050

Dear Customer,

You are the owner of our new CYCLOMIX™ mixing machine 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 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. EC DECLARATION OF CONFORMITY

The manufacturer : **KREMLIN REXSON** with assets of 6 720 000 euros


Head office : 150, avenue de Stalingrad – 93 245 - STAINS CEDEX - FRANCE

Tel. 33 (0)1 49 40 25 25 - Fax : 33 (0)1 48 26 07 16

Herewith declares that : Two-component mixing machine is in conformity with the provisions of :

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

Established in Stains, on March 1st 2003,



Daniel TRAGUS
President

2. GENERAL SAFETY INSTRUCTIONS



The CYCLOMIX™ mixing machine shall be installed outside the explosive area. It shall be in a safe area (non-explosive area according to the ATEX directive – refer to § 6)

WARNING : Any misuse of the equipment or accessories can damage them, result in serious body injury, fire or explosion hazard and reduce the equipment working life. Read, understand and comply with the safety instructions hereafter.

The personnel involved in operating and servicing this equipment must be aware of all safety requirements stated in this manual. The workshop supervisor must be certain that the personnel has perfectly understood the safety instructions and complies with them.

Read all instruction manuals as well as the tags of the equipments before operating the equipment.

Read local safety instructions and comply with them.

■ INSTALLATION REQUIREMENTS

🔴 **Ground the equipment as well as the component to be painted.**

Use the equipment only in a well-ventilated area to prevent from serious body injuries, fire and explosion hazards. Do not smoke in the spray area.

Never stock paints and solvents in the spray area. Always close the pots and the tins.

Keep the spray area clean and free from debris (solvent, rags,...).

Read paint and solvent manufacturer's technical instructions.

Spraying of some materials may result in hazardous working conditions. To protect the operator, respirator mask, hand cream and glasses are required (Refer to chapter "Safety equipment" of KREMLIN selection guide).

■ EQUIPMENT REQUIREMENTS

The operating pressure of these equipments are particularly high. Consequently, some precautions must be taken in order to prevent from accidents and from unsafe working conditions.

➔ **Never exceed the components maximum working pressure of the equipment.**

HOSES

Do not use hoses with a maximum burst-proof pressure less than four times the maximum service pressure of the pump (see data sheet).

Be certain the hoses are not crimped, leaking and not unrolled.

Be certain hoses are in good conditions and showing no evidence of damage.

➔ **Use only air hose with static conductor to connect the pump with the spray gun.**

All fittings must be tight and in good condition.

PUMP

➔ **Ground the equipment (use the connection on the pump).**

Do not use any product or solvent incompatible with the pump components.

Use the appropriate solvent for the material being sprayed to increase the equipment working life.

GUN

Never wipe the end of the tip with the fingers.

Always depressurize air and fluid hoses before carrying out any servicing on the gun.

Never point the spray gun at anyone or at any part of the body.

CYCLOMIX™

➔ **Do not install the machine in an explosive area. It shall be in a safe area (non-explosive area).**

➔ **Connect the machine to a mains supply fitted with a ground.**

Do not use any product or solvent incompatible with the machine components.

Use the appropriate solvent for the material being sprayed to increase the equipment working life.

➔ **Wear protective glasses to protect the operator from possible discharges during the handling of the CYCLOMIX™ machine test outlets.**

➔ **Do not use electrostatic spraying for water-based paints or paints with a resistivity lower than 10 MΩ.**

■ MAINTENANCE REQUIREMENTS

➔ **Never modify these equipments.**

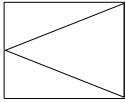

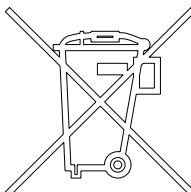
Check them daily, keep them in a good condition and replace the worn parts **only with KREMLIN parts**.

Before cleaning or removing components of the equipment, it is compulsory :

- 1 - to stop the air supply,**
- 2 - to open the gun fluid circuit to depressurize the hoses,**
- 3 - to shut off the machine electrical supply,**
- 4 - to open the drain valve.**

■ ENVIRONMENT

Label marking on the control box (box located outside the spray booth)

 KREMLIN	<input type="text"/> KREMLIN REXSON STAINS FRANCE 	
Tension	<input type="text"/>	
P air	<input type="text"/>	
P prod	<input type="text"/>	
Serie/Serial	<input type="text"/>	
Ref	<input type="text"/>	<input type="text"/>



This equipment consists of a label plate with the name of the manufacturer, the equipment part number, the interesting informations to use correctly the equipment (pressure, voltage...) and the above pictogram.

The equipment is designed with and consists of high quality materials and components which can be re-used.

The 2002/96/EC European Directive covers all equipments with a crossed-out bin pictogram. Please inform yourself about the collection systems for electric and electronic equipments.

Please according to local rules and **do not throw the old equipments with household wastes**. A correct disposal of the old equipment will help prevent negative consequences for the environment and health.

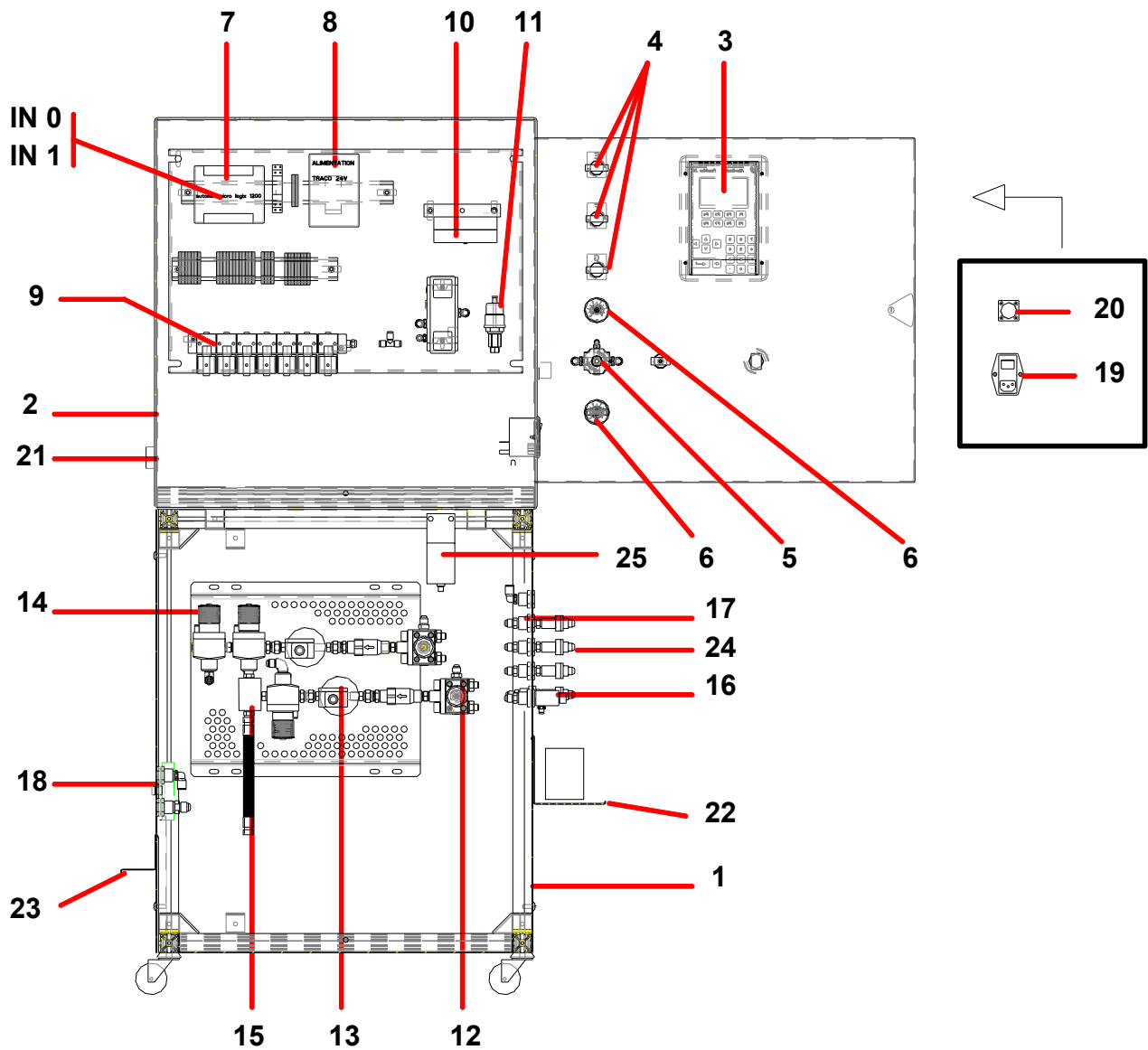
3. DESCRIPTION

The CYCLOMIX™ mixing machine is designed for applying paints or two-component varnishes (solvent or water-based).

It is available for 3 technologies of application : air spray, AIRMIX® spraying, AIRLESS® spraying (maximum spraying : 200 bar / 2,900 psi).

It comes in an independent and moving form. It is only supplied with compressed air (maximum 6 bar / 87 psi) and with electricity (230 V).

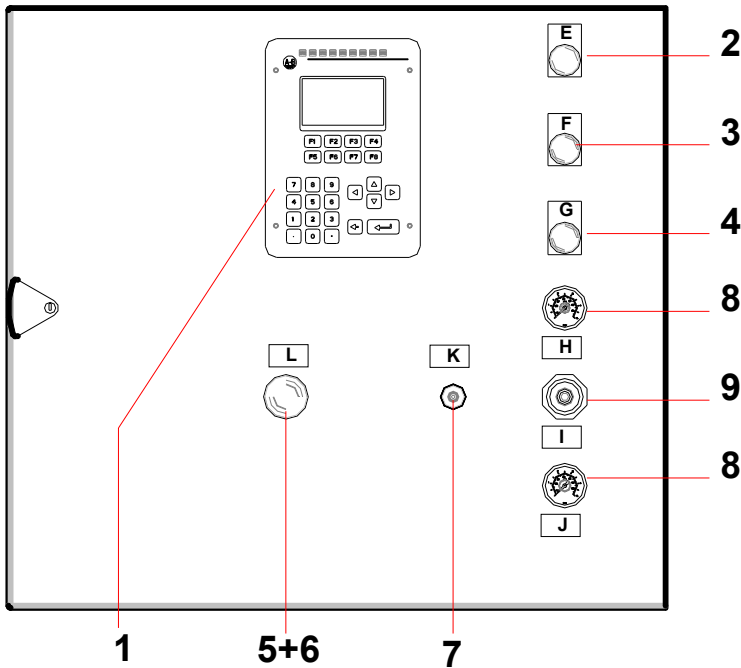
It consists of : a frame, a control bay with automaton (PLC) and electropneumatic control components, a module that receives the volumetric meters and the automatic valves for materials and solvents.



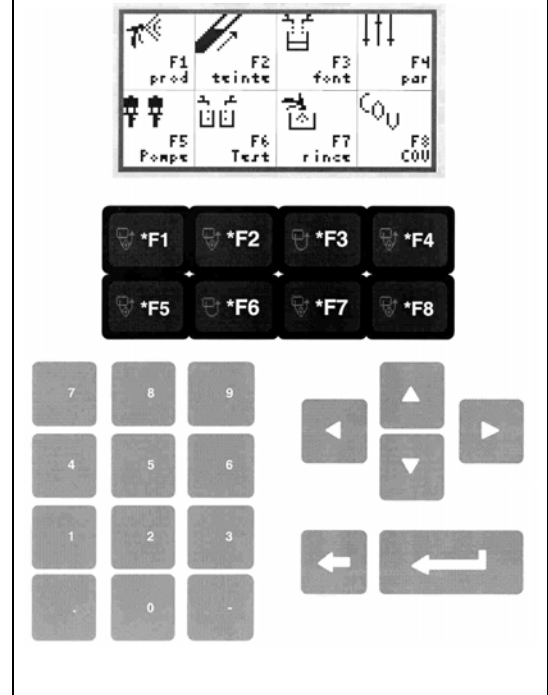
1	Frame
2	Control bay
3	Screen
4	LED
5	Air regulator
6	Gauge
7	Automaton (PLC)
8	Supply
9	Electrovalve
10	Flowmeter
11	Pressure switch
12	Color changer
13	Meter

14	Automatic valve
15	Mixer
16	Test valve (TA & TB)
17	Connecting support plate (inlets)
18	Connecting support plate (outlets)
19	Mains supply unit (230V + T)
20	Cord grip (robot interface unit)
21	Cord grip (STD9 box supply)
22	Beaker support (test valves)
23	Beaker support (gun)
24	Airmix® filter in line
25	Air filters
IN0 – IN1 : automaton (PLC) inlets	

FRONT PART OF THE BAY



SCREEN AND KEYBOARD



Ind.	Description	Function
E	Red LED	Fault
F	Orange LED	Operating (except production)
G	Green LED	Production
H	Gauge	Reading of the spraying air pressure (gun)
I	Air regulator	Adjustment of the spraying air pressure (gun)
J	Gauge	Reading of the CYCLOMIX™ air supply pressure
K	Black push-button	Emergency flushing if electricity shut off
L	Yellow push-button	Function stopping

The machine is totally programmable via a man/machine interface. The screen indicates continuously, by a simple identification, the statuses of the machine and the keyboard enables to have access to the essential functionalities : ON / OFF - FLUSHING - PRODUCTION.

The informations relating to the operating of the machine (real-time display of the ratio, of the consumption...) can be read on the LCD screen. The CYCLOMIX™ saves continuously the instantaneous consumptions of base, catalyst and solvent as well as the total consumptions and the emissions of Volatile Organic Compounds (VOC) during the operating of the machine.

On the right side of the machine, there is a cord grip. It is useful for the interface unit with the robot in the situation of an automatic spraying.

On the left side of the machine, there is a cord grip. It is useful for supplying the STD9 box (115V / 230V), in the situation of using an electrostatic gun.



Do not use electrostatic spraying for water-based paints or paints with a resistivity lower than 10 MΩ.

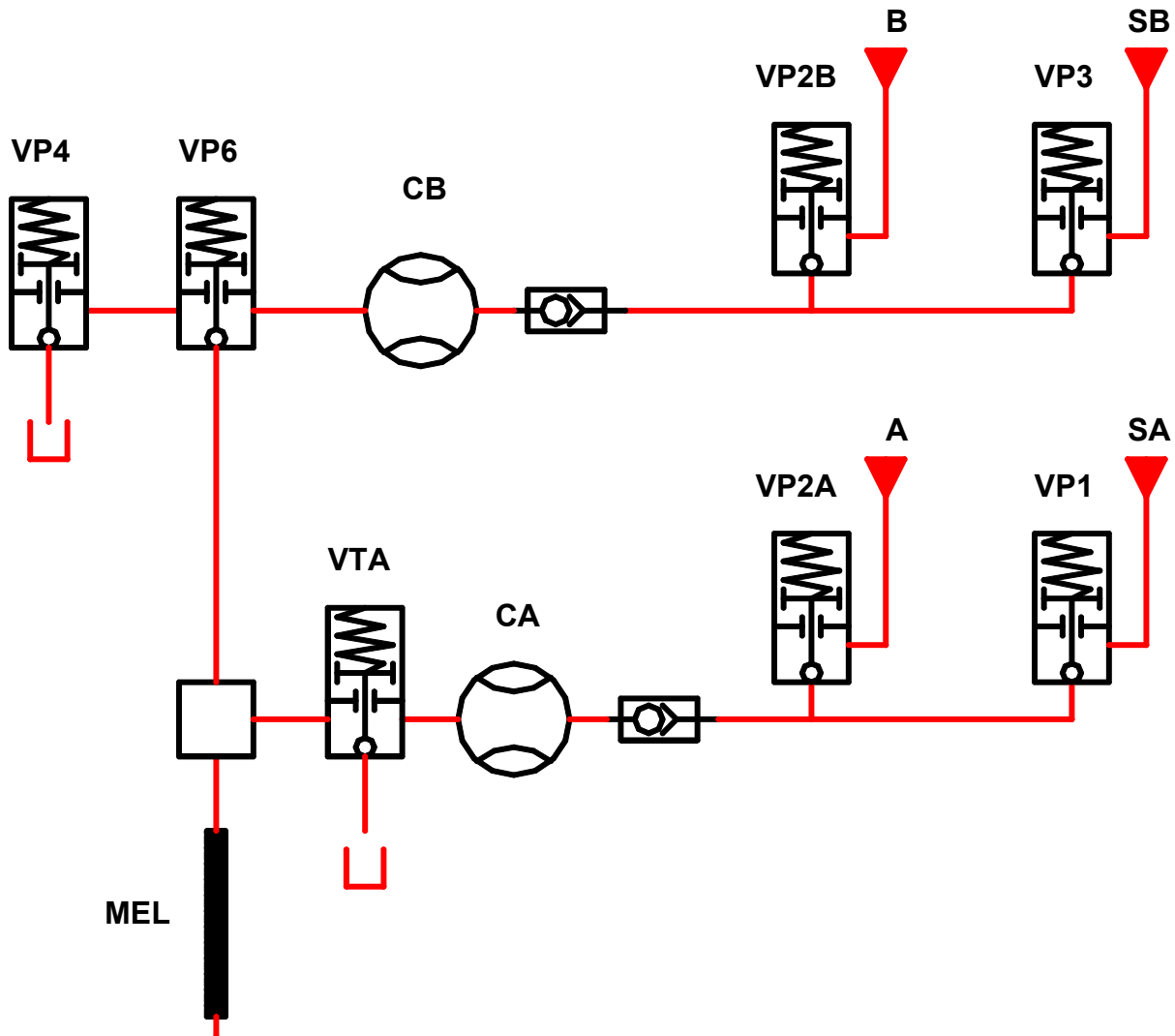
4. OPERATING PRINCIPLE

The BASE and CATALYST materials are sent to the mixing machine from 2 pumps or pressure tanks.

Each material crosses a piloted valve, a meter. The cycle begins with the simultaneous opening of the CATALYST and BASE valves. The 2 meters send their informations to the computer that shuts off the catalyst valve when the computerized mixing ratio is reached.

The mixing process is based on a base constant flow. The catalyst flow is injected low in frequency and regulated in pressure. The injection is made directly into the base flux at the mixer level.

The automaton (PLC) checks continuously the mixing ratio and if it notices a fault that it cannot correct, an alarm is activated. The machine goes on safety mode.



VP1	Base solvent piloted valve (SA)
VP2B	Catalyst piloted valve (B)
VP2A	Base piloted valve (A)
VP3	Catalyst solvent piloted valve (SB)
VP4	Catalyst test piloted valve

VP5	Base test piloted valve
VP6	Injection piloted valve
CA	Base meter
CB	Catalyst meter
MEL	Mixer

5. TECHNICAL FEATURES

<p>Number of colors : 1 Solvent and water-based paints compatibility Possibility of automatic piloting via robot Control external PLC Batch Different access levels to the software Multilingual display Display on the screen, in text form of the machine operating, parameters, alarms and faults</p> <p>Mixing permanent check Adjustable threshold alarm Adjustable pot-life indicator Automatic mixing control cycle Automatic flushing cycle VOC display Total indicator for base , catalyst and solvent consumption</p>	<p>Voltage : 230V / 115V – 75W Minimum air pressure : 4 bar / 58 psi Fluid pressure : from 2 to 200 bar/from 29 to 2900 psi Weight : 65 kg / 143.26 lbs Dimensions : 1380 mm x 640 mm x 480 mm Stainless steel fluid circuit (Base and Catalyst) for Cyclomix standard 316 L stainless steel fluid circuit (Catalyst) for Cyclomix PH Adjustable : from 0,6/1 to 20/1 (BASE volume / CATALYST volume) (from 166% to 5%) Measure precision : 1 % Mixed fluid flow : from 50 to 1500 cm³/mn Fluid viscosity : from 30 to 5000 cps</p> <p>OPTIONAL : Auto-wash Remote control box</p>
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6. INSTALLATION



**The CYCLOMIX™ mixing machine must be installed outside the spray booth.
Check the mains voltage and the voltage of the CYCLOMIX™ machine.**

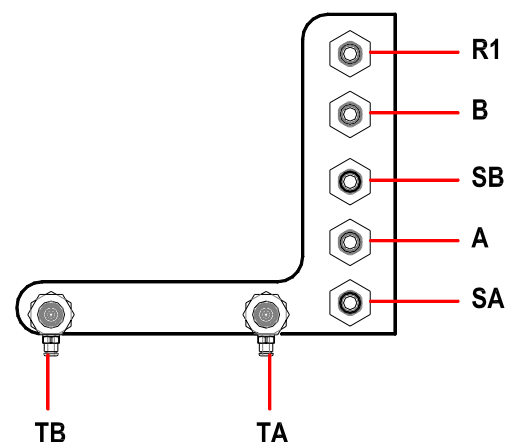
The CYCLOMIX™ must be connected to a clean and dry compressed air network (minimum 4 bar / 58 psi) and to a single-phase electric supply (230 V / 115V).

- ➔ Before connecting the CYCLOMIX™, be certain the mains voltage is the same than the one of the machine (230 V). If no, open the door of the bay and switch over the supply switch (ind. 8) (230V → 115V).

An air filter installed on the air supply of the machine equips the CYCLOMIX™.

You will connect on the right of the frame on the connecting support plate :

- R1 (F 1/4 BSP) : compressed air supply hose
- B (M 1/2 JIC) : CATA fluid hose
- SB (M 1/2 JIC) : SOLVENT (CATA) hose
- A (M 1/2 JIC) : BASE fluid hose
- SA (M 1/2 JIC) : SOLVENT (BASE) hose
- TB : CATA test valve outlet
- TA : BASE test valve outlet

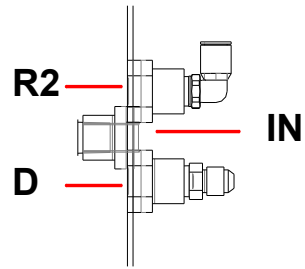


Connect the gun on the 2 outlets located on the plate on the left (air and fluid supply).

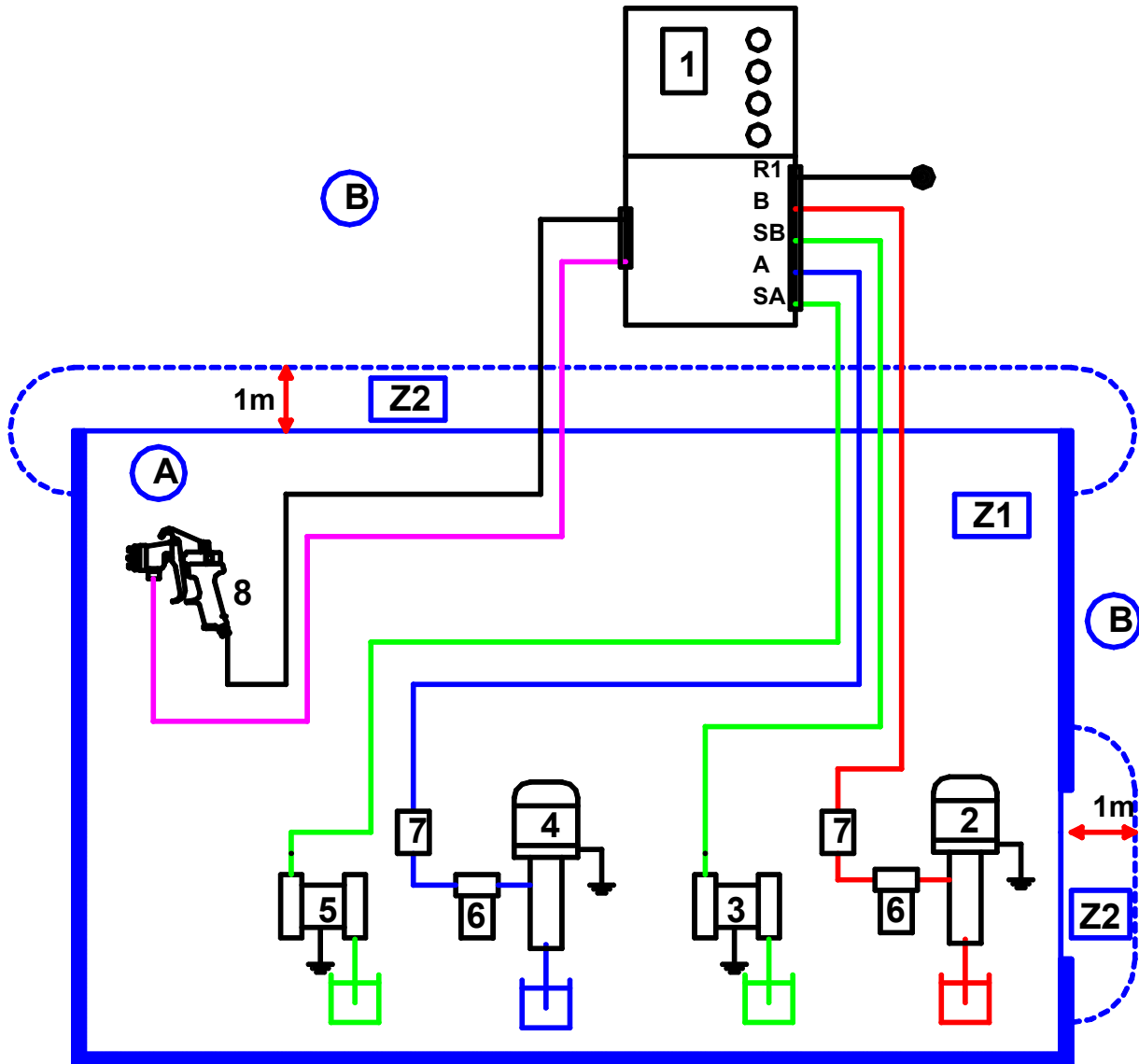
R2 (F 1/4 BSP) : air hose

D (F 1/4 BSP) : mixed fluid hose

IN : return of the auto-wash pneumatic push-button (cup)



Some Airmix® in line filters are mounted on the "INLETS" connecting support plate : fluid and solvent of the machine (A, B, SA and SB). In the standard version, # 6 screens come with filters. They must be adapted to the material to be mixed and changed if necessary (refer to Spare parts).



A	Explosive area : area 1 (Z1) or area 2 (Z2) (spray booth)	4	BASE pump
B	Non-explosive area (safe area)	5	SOLVENT pump (base)
1	CYCLOMIX™ mixing machine	6	Filter
2	CATA pump	7	Fluid pressure regulator
3	SOLVENT pump (cata)	8	Gun



**Assemble filters at the outlet of the BASE and CATA pumps.
Assemble pressure regulators at the outlet of the BASE and CATA pumps.**

Assemble fluid hoses and air hoses between the pumps and the CYCLOMIX™, between the CYCLOMIX™ and the gun. When choosing fluid hoses, respect the pressures delivered by the pumps. For the air hoses, assemble antistatic hoses.

Unscrew all regulators before supplying air to the installation.

Shut off the test valves (TA & TB).

7. OPERATING

■ DRIVING FROM THE MACHINE

SCREEN

The different menus and the informations relating to the machine are displayed on the screen.

➡ **Read carefully the messages and follow the instructions to operate the machine.**

KEYBOARD

From F1 to F8	These keys control the different work phases of the CYCLOMIX™ (refer to menus)
◀ ▶ ▲ ▼ ↵	These keys enable the shift in the PARAMETER menu.
0 ... 9	Digital keypad : these keys enable to enter the values of the parameters.

■ SWITCHING ON THE MACHINE



The placing of the system into operation requires that the BASE, CATALYST and SOLVENT DRUMS are full enough to ensure the production.

Connect the gun before placing the system into operation.

Switch on the bay (switch located on the side of the bay).

Supply air to the CYCLOMIX™ bay (minimum 4 bar / 58 psi). The pressure can be read by means of the gauge located on the front part of the bay.

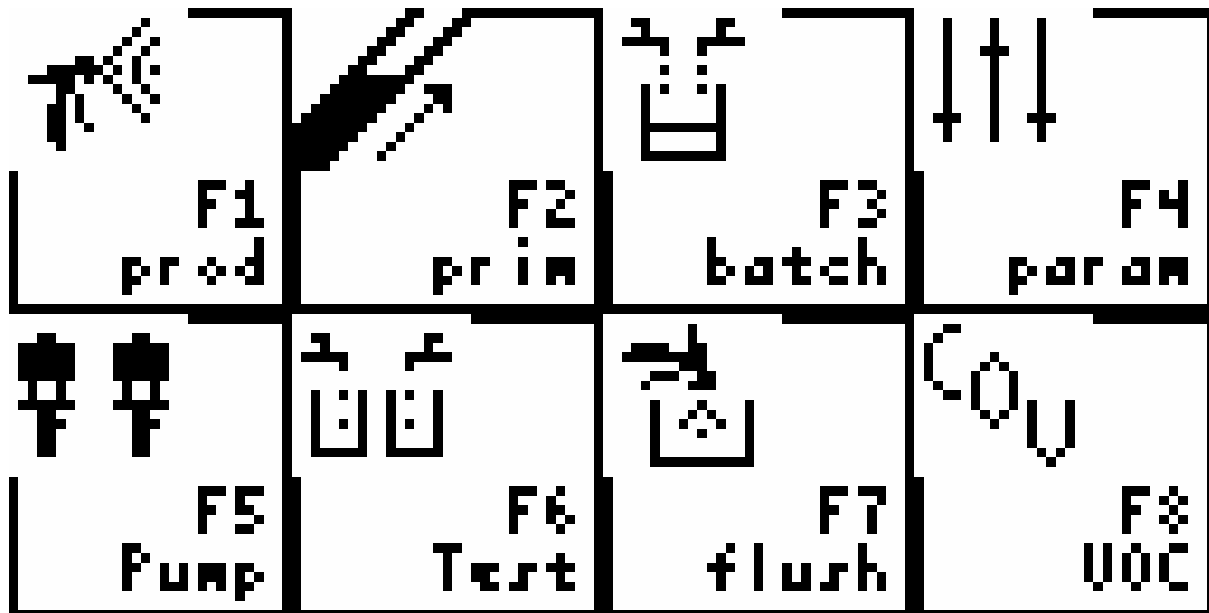
Supply air to the air regulators of pumps (BASE, CATALYST, SOLVENT).

When switching on the bay, a menu is displayed on the screen.

Nota : Parameters have been programmed in the factory before the delivery of the machine. You must adapt the parameters to the use. They must be modified by an authorized person (refer to list of parameters).

8. FIRST SWITCHING ON

STANDARD MENU



F1	Production	Enables to produce according to the parameters defined
F2	Priming	Enables to deliver some fresh and mixed material to the gun
F3	Batch	Enables to deliver a quantity of mixed material to define via TA & TB
F4	Parameters	Enables to adjust the parameters
F5	Pump	Enables to prime the pumps during the first starting up
F6	Ratio test	Enables to carry out a mixing ratio test
F7	Flushing with solvent	Enables to flush the Cyclomix™ with solvent
F8	VOC	Enables to view all the consumptions of the Cyclomix™

Read the messages displayed on the screen and follow the instructions to operate the machine.

9. FIRST PLACING INTO OPERATION

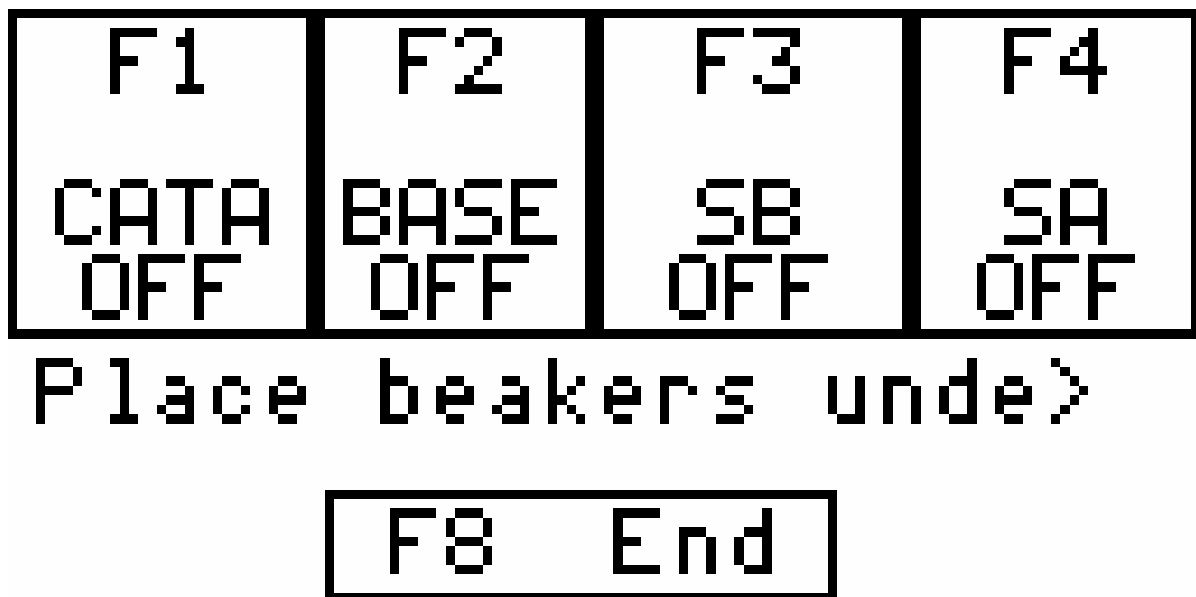


During that first placing into operation, it is compulsory to have all the pumps into solvent as well as the machine to ensure the good quality of the fluid get by the CYCLOMIX™.

■ FLUSHING OF THE PUMPS AND OF THE MACHINE INTO SOLVENT

- Carry out the connections indicated at § 6 (INSTALLATION).
- Shut off the 2 test outlets TA and TB and place a receptacle under these ones.
- Start the 4 pumps with solvent and increase the fluid pressure to 1 bar / 14.503 psi.
- On the page of the display main menu, input F5 (pump).

The following page is displayed :



You shall respect the opening order of the pumps
F1 ;F2 ;F3 ;F4 ;F8 (every icon must be on ON)

- Input F1 and open the test outlet TB so that the fluid flows. Let flow during 1 minute.
- Input F2 and open the test outlet TA so that the fluid flows. Let flow during 1 minute.
- Input F3 and let flow during 1 minute.
- Input F4 and let flow during 1 minute.
- Input F8 when the previous operations are over.

■ START-UP OF THE MACHINE

- Start-up the 4 pumps with materials.
- Shut off the test outlets TA and TB.
- Put the fluid at the pressure of production. Do not forget that the pressure of the catalyst must be **higher** than the one of the base (about **5% to 10%**).

Catalyst priming

Place receptacles under the test valves (TA and TB).

Input F 5 (pump) on the page of the main menu.

Input F 1 (CATA OFF)

CATA OFF ⇒ CATA ON

Open the test valve TB (CATALYST) **gently** so that the catalyst drains off.

⇒ **Refrain from handling the test valve TB.**

Base priming

Input F 2 (BASE OFF).

Prime the BASE pump as previously indicated.

BASE OFF ⇒ BASE ON

Open the BASE test valve (TA) **gently** so that the base drains off.

⇒ **Refrain from handling the test valve TA.**

SA and SB solvent priming

Input F 3 (SB OFF) ⇒ Priming of the SB SOLVENT pump to the machine.

SB OFF ⇒ SB ON

Let flow until clean SB solvent drains off.

Input F 4 (SA OFF)

SA OFF ⇒ SA ON

Let flow until clean SA solvent drains off.

Priming over

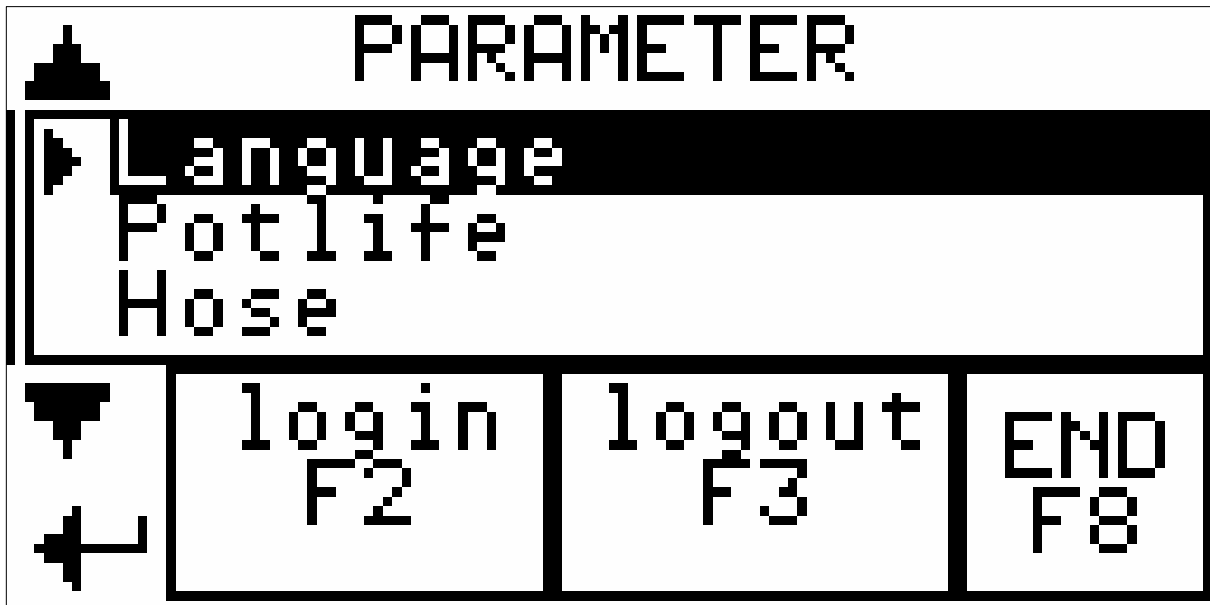
Input F 8 ⇒ End of the PRIMING phase, back to the menu.

- ➔ **The CATALYST pressure must always be higher from 5 to 10% than the BASE pressure.**

10. APPLICATION PROGRAMMING

To modify the parameters of the CYCLOMIX™, enter F4 in the page of the main menu (or F5 in automatic mode).

The following view is displayed :



To shift from a parameter to another, use the arrows ▲ or ▼.

Select the parameter to alter. Depress the key ↵.

When there are parameters with various datas, use the arrows ◀ ▶ to go from a data to another.

If a digital value needs to be entered, enter the value (no dot, no comma) behind the cursor (I) that is displayed on the screen.

To quit a parameter, enter **F 4**.

To quit the menu PARAMETERS, enter **F 8**.

The parameters are pre-programmed in the factory. They must be modified (by an authorized person) to adapt themselves to the fluids (3 levels of authorization).

■ **AUTHORIZATION**

The LOGIN (F 2) key enables to become identified with entering the password and to make the modifications.

Password : M → maintenance, C → Person in charge, without password → User (letter in capital)

The LOGOUT (F 3) key gives the control of the machine to the user.



To enter the password, select the characters and the functions suggested by the menu.

Screen	Function	Keys on the keyboard
SEL	Select	F 1
VERR	Small / capital letter	F 2
<<	Left shift	◀
>>	Right shift	▶
INS	Insert	F 6
EFF	Delete all	F 7
ECH	Quit the menu	F 8

To enter the password, shift the cursor on the character to select, then depress SEL.

Redo that stage if the password has several characters, depress the key ◀ to vet.

You can modify the password by entering into the parameter « PASSWORD »

■ LIST OF THE PARAMETERS

Parameters	Description	Factory adjustment	Your adjustments	Your adjustments	Access
Language	French, English, Deutsch, Italian, Spanish	French			C / M
Pot life	Time : I xxxx s ◀ pot life NB ▶	900 s 3			All
Hose	Length : I xxxx M ◀ Diameter : I xxxx mm ▶	10 635			C / M
Ratio	CATA %	50,0%			All
Ratio fault	Ratio % : I xx % ◀ Nb of faults : I xxx ▶	5 % 3			C / M
Ratio alarm	Ratio alarm : I xxx,x % ◀	0,5			C / M
Base flushing	solvent : I xxxxxx ◀ Value kept : I xxxxxx ▶	0 5000			All
Cata flushing	Hose Nb : I xx ◀	3			C / M
Solvent fault	Base max time I xxxx s Cata max time I xxxx s	400s 400s			C / M
Flush outlet	Value xxxxs	60s			
Atomizing air	With air / Without air F2	With air			C / M
Auto-wash	Use of AUTO-WASH F2 AUTO-WASH OFF	AUTO-WASH OFF			C / M
Automatic	AUTOMATIC use AUTOMATIC OFF F2	AUTOMATIC OFF			C / M
Flow limiting	Max flow limiting : I xxxxx ◀ Mini flow limiting : I xxxxx ▶	32 767 0			C / M
Percentage of solids	Percentage of solids : xxx %	55			All
Flowmeter	CATA flowmeter : I xxxxx ◀ BASE flowmeter : I xxxxx ▶	280 280			C / M
New password		C/M			C / M
Servicing	Flowmeters F1 Outlets F4				M
Panel view	CPU V : ## SETUP : ◀ + ▶	Program version Display system			C / M
New password	4 access levels : KREMLIN, person in charge, maintenance, user	User C / M			All
Kremlin	Reserved for Kremlin				

Access : **U** ⇒ User

C ⇒ Departmental head - person in charge

M ⇒ Maintenance

■ EXPLANATION OF THE PARAMETERS

*Language : choice of the Cyclomix™ language

*Potlife :

Time : pot life (in seconds)
(400- 32000)

Potlife Nb : the number of potlife prime cycles before flushing with solvent
(2- 100)

*Hose :

Length : hose length (meter) between the Cyclomix™ and the gun

ID : hose internal diameter between the Cyclomix™ and the gun

*Ratio :

cata % : input the ratio value for the catalyst (refer to annex ..)
(5 - 160 %)

*Ratio fault :

ratio fault % : enter the ratio fault in %
(For a stopping of the Cyclomix™) (1-100%)

fault nb : enter the number of successive ratio faults before stopping the Cyclomix™

*Ratio alarm :

Ratio alarm % : enter ratio alarm limit in % to send an alarm without stopping the Cyclomix™
(0.1-100%)

*Base solvent :

That parameter enables to measure the volume of solvent necessary for the flushing of the mixed material contained between the Cyclomix™ and the gun.



Priming needs to be completed first

- Input F1 to open the base solvent circuit. Open the gun until the solvent is clean.
- Close the gun.
- Input F5 for 2 seconds.

(The values written are a number of impulse and not a volume)

*Cata solvent :

hose nb : it is the quantity of cata solvent delivered to drain off the catalyst contained in the flowmeter and to fill the Cyclomix™ with solvent. Enter the number of hose for the week end flush.

*Solvent fault :

Base max time : time in seconds for calculating a base solvent flow fault.

Cata max time : time in seconds for calculating a cata solvent flow fault.

*Flush outlet :

Flushing time of the test outlets after a batch or a mixing ratio test.

*Atomizing air :

Atomizing with or without air

*Autowash :

Use of the autowash system

*Automatic :

Use of a robot or of an other automaton to pilot the Cyclomix™

*Flow limiting : ⚠ that parameter is only used in automatic mode

Maximum limiting : maximum value of the quantity of sprayed materials by gun opening.

Minimum limiting : minimum value of the quantity of sprayed materials by gun opening.

*% of solids :

Percentage of solids in base material

*Flowmeter : parameter used to calibrate the flowmeters in relation to the material.

⚠ The test outlets must be open and the gun closed.

Input F1 and wait until the material does not drain off anymore from TA &TB.

Measure the quantities of materials delivered and transfer them to the 2 parameters.

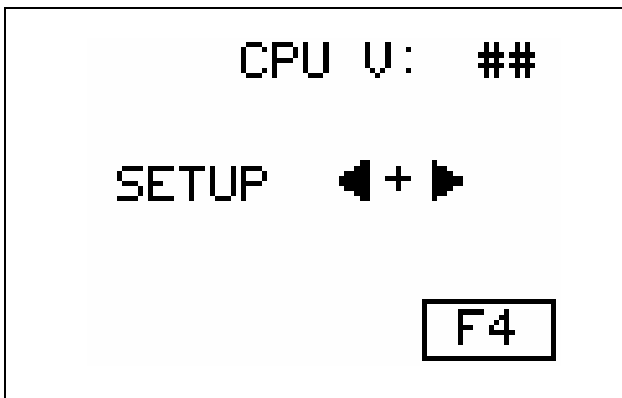
*Servicing : ⚠ the test outlets must be open.

Flowmeter : that page enables to check flowmeter signals.

Outlet : that page enables to activate manually all the outputs

⚠ When exiting these pages, all the outputs and flowmeters must be on OFF

*Panel view:



CPU V : that page enables to check the program version of the Cyclomix™.

SETUP : when pressing the 2 keys simultaneously, that page enables to enter in the display system menu (modification of the hour, the date...)

*New password :

That page enables to personalize the passwords.

*Kremlin :

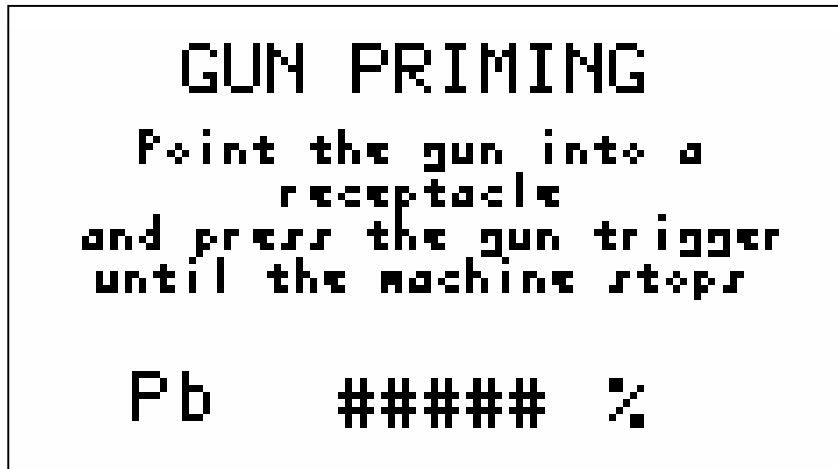
Reserved

■ **GUN PRIMING**

When you are in the page of the main menu, input F2 to prime the gun.

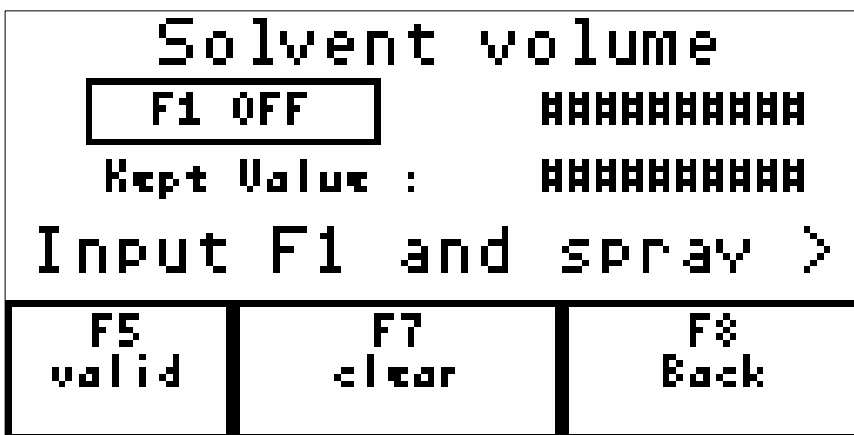
Mixed material will be prepared by the machine and sent to the gun. The gun must be open to prime.

The following view is displayed :



Before passing into production mode, it is important to calibrate the BASE FLUSHING parameters.

■ **BASE FLUSHING**



- Input F 7 to clear the digital value on the upper line.
- Input F 1 to supply with solvent.
F 1 OFF B ⇒ F 1 ON B
- Spray until the solvent flows clean.
- Input F 5 (for 2s to VALIDATE).
-
- F 1 ON B ⇒ F 1 OFF B**
- Input F 8 to quit.

That parameter is used for the flushing of production.

When you select that kind of flushing, the machine delivers the volume that you have memorized during the above parameter.



Never quit that page until reading : F1 OFF.

After that stage, you can pass into PRODUCTION mode.

11. INDICATIONS GIVEN BY THE LED

Description	Function	Action
Red LED	Fault	The machine stops.
Orange LED	Working	Function other than production (priming, flushing, pot-life alarm).
Green LED	Production	
Green + orange LED	Waiting	
Green + orange + red LED	Production + flow alarm	Fluid flow out of the limits defined by the "flow limit" parameter.
LED switched off	Programming	

12. BATCH

That function is used in case of alteration made by the operator.

In that mode (F3 of the main menu in manual) the Cyclomix™ will deliver, via the TA & TB test outlets, the volume of fluid programmed at the ratio that has been programmed.

➡ **During that stage, the gun must be shut off.**



Caution : if the installation is in "AUTOWASH" configuration, you must remove the gun from the AUTOWASH support.

That stage is followed by a flushing of the test outlets. To start up again in production, you must carry out a gun priming.

13. TEST

That function is used to check the ratio of the Cyclomix™.

In that mode (F3 of the main menu in manual), the Cyclomix™ will deliver, via the TA & TB test outlets, the dosing ratio over the volume of 500cc of base.

➡ **Wear protective glasses to protect the operator from possible discharges during the handling of the CYCLOMIX™ machine test outlets.**

➡ **During that stage, the gun must be shut off.**



Caution : if the installation is in "AUTOWASH" configuration, you must remove the gun from the AUTOWASH support.

That stage is followed by a flushing of the test outlets. To start up again in production, you must carry out a gun priming.

14. WEEK-END FLUSHING OR PRODUCTION FLUSHING

During the stopping of the machine, you must carry out a flushing.

Input F 7 of the main menu ⇒ flushing with solvent. Select the kind of flushing (production flushing / week-end flushing), then point the gun into a receptacle and press the gun trigger until the machine stops.

For a PRODUCTION flushing :

the Cyclomix™ will flush all the BASE circuit from the color changer to the gun (meter, automatic valves, mixer, connecting hose) with the volume of solvent base programmed in the BASE flushing parameter. The CATALYST circuit is not flushed. After that flushing, the Cyclomix™ starts up again in the main menu. Then, you can start in production.

For a WEEK-END flushing :

the machine carries out a PRODUCTION flushing, then flushes the CATALYST circuit : meter, automatic valves, mixer, hose and gun with catalyst solvent. You can then switch off the machine.

Leave the machine full of solvent. Shut off the electric supply (switch on the right side) and the air supply.

In automatic mode, the robot bay controls the kind of flushing and the stopping of the Cyclomix™.

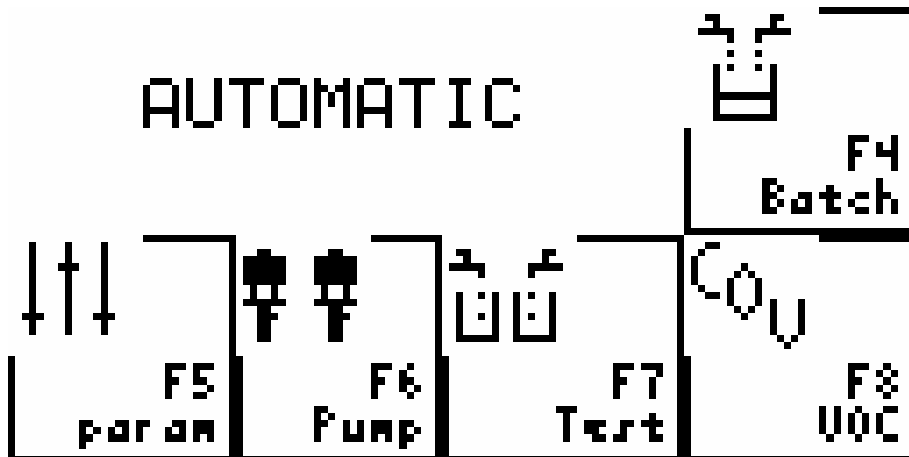
If a power outage occurs, you can carry out a flushing of the machine by pressing the black press-button "EMERGENCY FLUSHING" located on the front part (pneumatic control).

15. OTHER MENUS

They are selected from the parameters programming.

If the user has chosen an other menu than the standard menu, as AUTOMATIC or AUTO-WASH menu, a different menu will be displayed on the screen during the switching on of the machine.

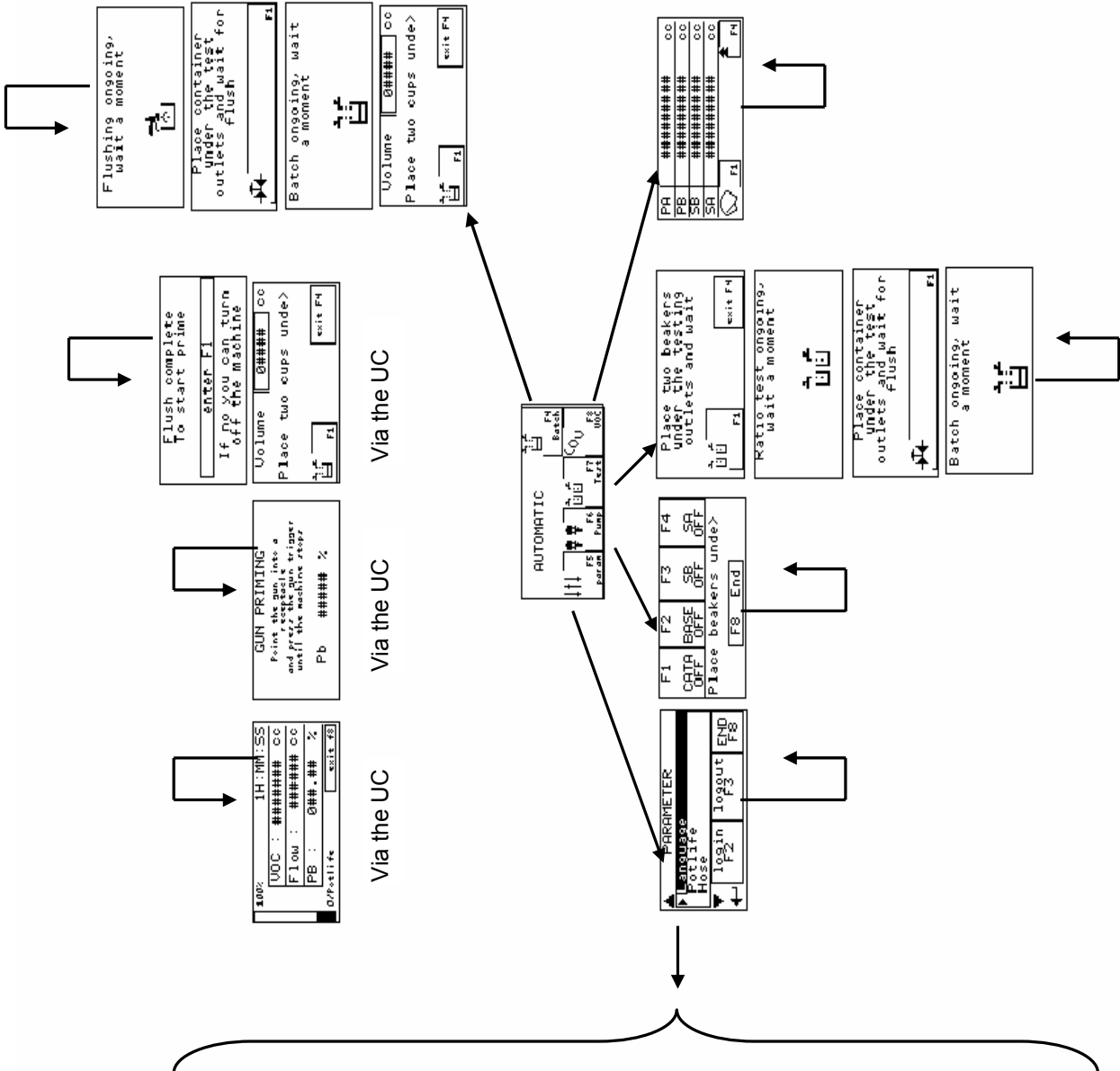
■ AUTOMATIC MENU



For a spraying with an automatic menu :

The START-UP, PRIMING and FLUSHING functions are controlled by the bay of the robot. The interface unit is carried out via the terminals inside the box (see electric diagram - folio 4).

Arborescence of the menus on AUTOMATIC



WEEKEND FLUSH
NB HOSE [0#]
enter the nombre 0>
Retour [F4]

Use of the auto-wash
automizing air
with air
F2 to modify the pa>
[F4]

Use of the auto-wash
Auto-wash off
F2
F2 to modify the pa>
[F4]

Automatic use
Automatic OFF
Input above F2 to m>
[F4]

Maximum flow [#####]
Input above the flo>
Minimum flow [#####]
Input above the flo>
[F4]

Percentage of solid
[###] %
Enter the percenta>
[F4]

Calibration
Floumeter B [#####] cc
Floumeter A [#####] cc
Place two test tube>
rears F1 [F4]

Floumeters Outlets
F1
F8
Back

F1 [#####]#####
F2 NEW Password
F3 CHECK Password
Back

LANGUAGE
Deutsch
Deutsch
Italiano
[F4]

Potlife time: [#####]
Input above the mat>
Potlife NB: [###]
Input above the suc>
[F4]

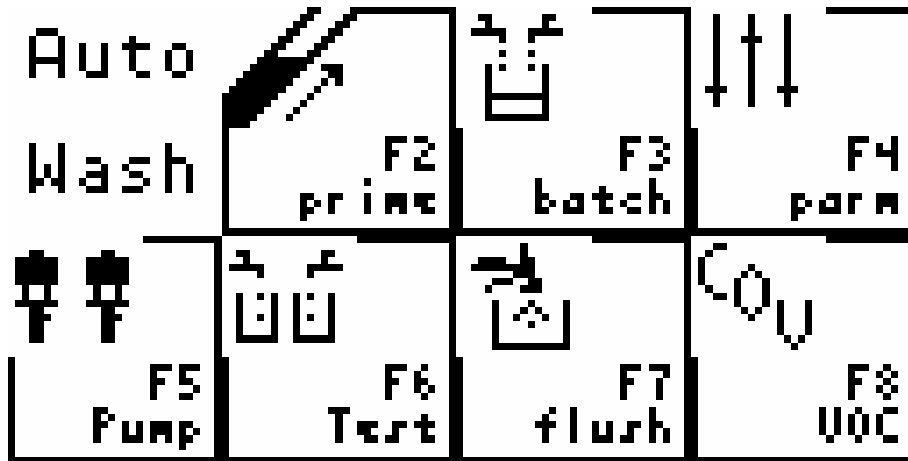
LQ: [#####] M
Input above the hoz>
ID: [#####] mm/100
Input above the hoz>
[F4]

CATA part :
[#####]
Input above the dos>
[F4]

ratio fault %: [###]
Enter the ratio fau>
Fault nb: [###]
Enter the number o>
[F4]

Solvent volume
F1 off [#####]
next value : [#####]
Input F1 and spray >
F5 valid clear F8 Back

■ AUTO-WASH MENU



A plate located on the booth has a "PRODUCTION : O - I" selector and a system to hang up the gun.

During a stoppage :

Turn the "PRODUCTION" selector on "O".

Depressurize the hose by triggering the gun.

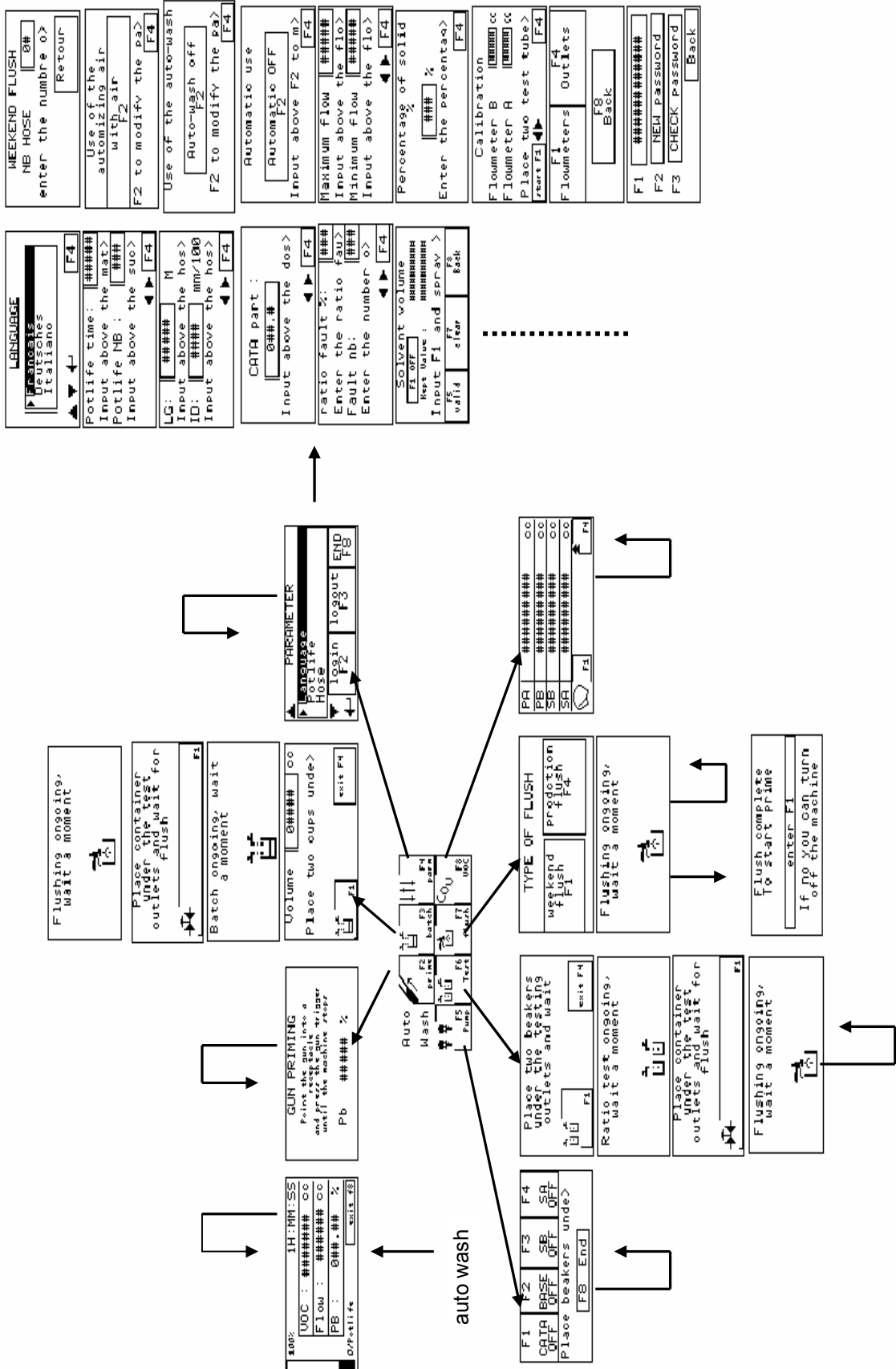
Hang up the gun on the support (trigger open).

When the time corresponding to the pot-life passes or during a flush or a priming, the fluid will flow.

To start, turn the production selector on "I".

Use the auto-wash	<p>Use of the auto-wash.</p> <p>Time of inactivity : it is the maximum authorized time during which the painter does not spray in PRODUCTION mode.</p> <p>⚠ That parameter is essential for the spraying without air with AUTO WASH.</p>
Auto-wash off	
<p>Touch screen to modify the parameter</p> <p>Inactive time, only with auto-wash (s):</p> <p>#####</p> <p> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> </p> <p style="text-align: right;">Exit</p>	

Arborescence of the menu with AUTO-WASH



16. MAINTENANCE

**Never leave the mixed material in the machine.
Properly adjust the Pot life parameter to avoid hardening. Carry out a flushing when the work is over.**

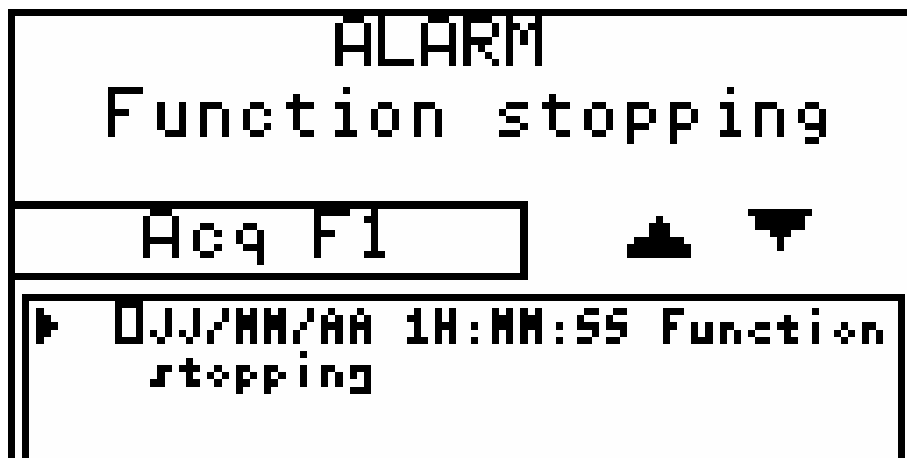
Change regularly the mixer assembly to avoid a loss of pressure into the circuit of the mixed fluid.
Clean the screens of the filters and change them if necessary.

For any intervention on the machine :

- Flush the circuits,
- Shut off the compressed air,
- Depressurize the hoses by triggering the gun,
- Shut off the electric supply.

17. TROUBLESHOOTING

If a problem occurs during the operating of the machine, some alarms or fault messages will be displayed on the screen of the machine.



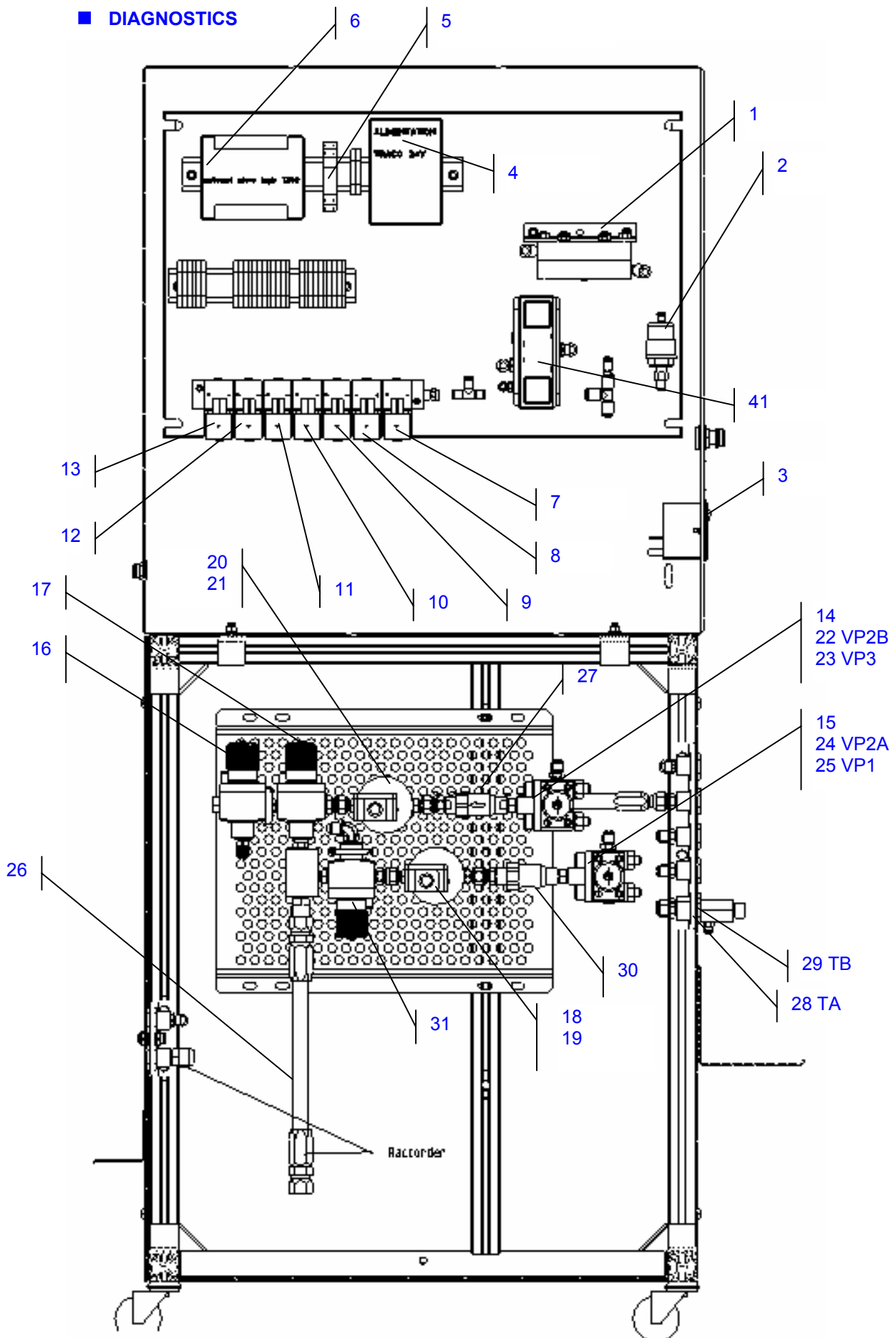
The list of the alarms is displayed on the screen with the day and the hour.
Input F1 to acquit each alarm.

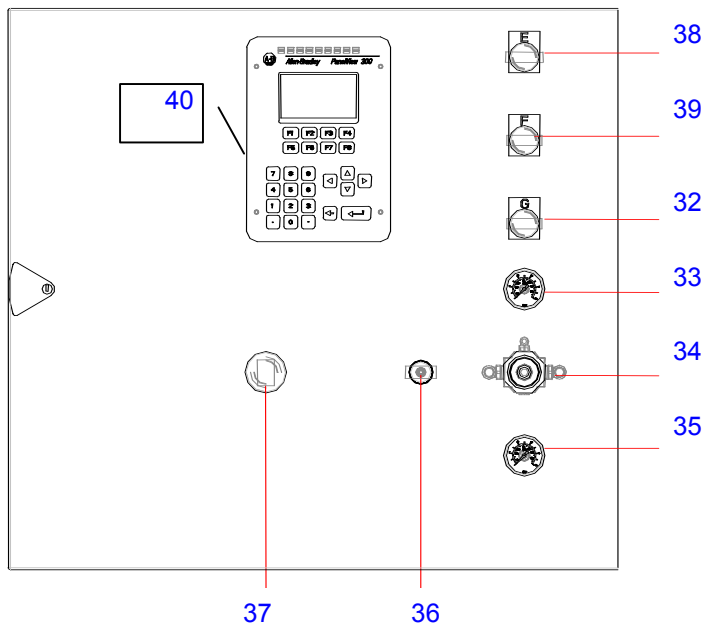
PROBLEMS	CAUSES	SOLUTIONS
CATA flowmeter Or BASE flowmeter	Flowmeter blocked	Check the fluid circuit (pump, valve) Clean or change
	Time between air opening and fluid opening upper than 3s.	Trigger the gun quicker.
Mixing ratio	Flow improperly adjusted	
Function stopping	Yellow push-button engaged	Unlock.

To check the operating of the machine when using it, you can call up the SERVICING parameter and watch the flow of the flowmeters and the state of the automaton outlets (access authorized only to the MAINTENANCE).

S0	EV 1	Base SOLVENT piloted valve	The 3 outlets S4, S5 S6 enable a coding of the faults (refer to § 11 – Indications given by the LED)
S1	EV 2	BASE + CATA piloted valve	
S2	EV 3	Cata SOLVENT piloted valve	
S3	EV 4	CATA TEST piloted valve	
S4	Red LED	LED + robot info	
S5	Orange LED	LED + robot info	
S6	Green LED	LED + robot info	
S7	EV 5	BASE TEST piloted valve	
S8	EV 6	INJECTION piloted valve	
S9	EV 7	SPRAYING AIR piloted valve	

■ DIAGNOSTICS





ELECTRIC

- The machine does not switch on :
 Check that the mains supply is connected.
 No : connect it.
 Check that the fuse is in good working order.
 No : change the fuse. (ind. 3)
 Check if a green diode is switched on the 24V supply (ind. 4)
 No : change the supply (ind. 4)
- When switching on, no LED is operating (ind. 38, 39, 32)
 Check the operating via the servicing parameter.
 If they do not switch on : change the concerned LED.
- The display unit (ind. 40) does not switch on :
 Check the electric wiring (bad contact or other)
 No, change the display unit.
- When you push on the push-button "stopping of function" (ind. 37)
 Nothing occurs :
 Check the proper operating of the push-button
 Check that the IN3 diode of the automaton is switched on.

FLUID

- During the priming, no fluid flows from the gun :
Check if the machine is supplied with air (reading of the pressure - ind. 35) (minimum 4 bar / 58 psi)
Check that the pumps are pressurized.
- During the priming, the measure displayed does not reach the instruction :
Check the pressure of the catalyst.
- When we are in the page of the main menu :
If fluid flows when the gun is open : valve leak.
Detection of the valve :
Open the box, watch at ind . 6, open the gun and watch if IN0 or IN1 flashes on.
If IN1 flashes on : valve leak (24 or 25)
Flush the machine with solvent (week-end flushing)
Remove the parts (30,15) via the swivel fitting.
Watch what flows,
If it is solvent, change the valve 25 (Vp1)
If it is base, change the valve 24 (Vp2A)
If IN0 flashes on : leak of the valves (17 &14)
Flush the machine with solvent (week-end flushing)
Change the valve (17)
Remove the parts (27,14) via the swivel fitting.
Watch what flows,
If it is solvent, change the valve 23 (Vp3)
If it is catalyst, change the valve 22 (Vp2B)
- During the production, if there is a leak at the test outlets level :
If the fluid flows from the test outlet TA (ind. 28) :
change the valve (31).
If the fluid flows from the test outlet TB (ind. 29) :
change the valve (16).
- One of the meters does not count :
Open the box, operate the gun and watch if IN0 or IN1 (automaton outlets) flashes on (ind. 6).
If IN1 does not flash on : the base flowmeter is in fault (18 & 19)
Test if it is the sensor or the mechanical part :
Unscrew the sensor (black unit). Bring the tip of a mechanical part closer and move it away. If the sensor works properly, the IN1 diode must flash on.
Yes : change the mechanical part; No : change the sensor.
If IN0 does not flash on : the cata flowmeter is in fault (20 & 21)
Test if it is the sensor or the mechanical part.
Unscrew the sensor (black block). Move near then away the tip of a mechanical part.
If the sensor works properly, the IN0 diode must flash on.
Yes : change the mechanical part.; No : change the sensor.
- There is a problem of flow at the gun outlet :
Change the mixer (ind 26).
- The fluid valves are not working :
Check the electrovalves (13, 12, 11, 10, 9, 8)

AUTO-WASH

- You cannot switch to production with the auto-wash :
 - Check the auto-wash parameter.
 - Check that air is coming in IN at the outlet plate level.
 - Check that the INX diode of the automaton lights on when you push the button.
 - If no, check the air pressure
 - Or change the pressure switch (ind. 2)

AUTOMATIC

- You cannot switch to production or to priming or to flushing :
 - Check the automatic parameter.
 - Check the electric wiring.

AUTOMATON

- If the automaton is in mode fault (fault diode on) or is not in mode run (run diode off)
 - Call KREMLIN.

PNEUMATIC

- The gauge (ind. 35) is not working :
 - Change it.
- The gauge (ind. 33) is not working :
 - Check that you are in production.
 - Check the spraying air parameter.
 - Check the distributor ind. 41.
 - Check the piloting electrovalve via its manual control (ind. 7).
- In production, the total is no longer working :
 - Check the flowmeter (ind. 1). When it's engaging, the IN5 diode of the automaton (ind. 6) must be switched on.
- During a TEST or BATCH program, if nothing flows from the test outlets TA or TB (ind. 29 & 28) :
 - Check if the test valves are open.
 - Check that the hoses are not blocked up.
 - Check the valves (ind. 16 and ind. 31).

ELECTRO MODE

- If the electronic supply box (STD 9 power supply unit) does not switch on in production or if it does not switch off when you are waiting :
 - Change the relay (ind. 5)

18. DISASSEMBLY - REASSEMBLY

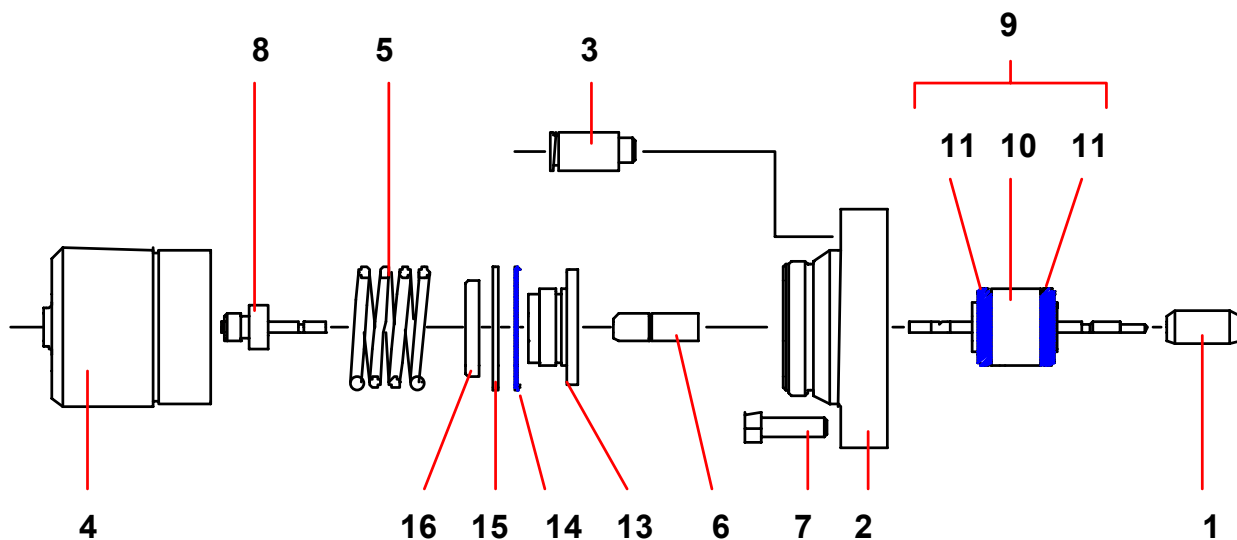
Stop the machine after the flushing.

Depressurize the circuits.

■ MIXER

Unscrew the mixer assembly and replace it with a new one.

■ PILOTED VALVES (FLUID VALVES AND TEST VALVES)



CARTRIDGE OF A FLUID VALVE (Ind. 9)

Unscrew the 3 screws (7).

Remove the valve from the module body.

Unscrew the needle (1).

Unscrew the cylinder (4).

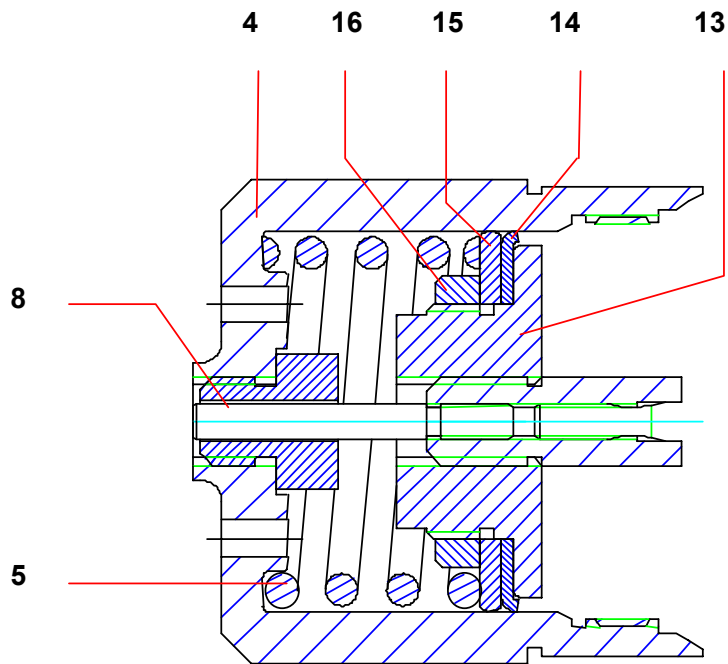
Hold the rod strainer (6), unscrew the needle rod and remove the cartridge assembly with rod (9).

Assemble the new cartridge (9) into the cylinder support (2) pushing it until the shoulder of the cartridge rests on the shoulder of that support, then reassemble all parts of the valve in reverse order of the disassembly.

Present the valve in front of the module body.

Center the cartridge (9) on the module body then reassemble the screws (7).

PISTON PACKING (IND. 14)



Unscrew cylinder (4).
Remove spring (5).
Unscrew the opening signal light (8).
Unscrew nut (16).
Remove the support washer (15) and the packing (14).
Clean the parts and change them if necessary.

When reassembling :

Before assembling on the piston (13), take care of shaping the cartridge lip (14) by hand as shown in the above drawing (cartridge turned up on the piston).

The nut (16) must be glued on the piston (13) with loctite adhesive (eg : Loctite 222).

19. PREVENTIVE MAINTENANCE PLAN

SUBSET	ELEMENT	OPERATION TO CARRY OUT	TIME EXPECTED	PERIODICITY	MACHINE STATE	TOOLS	SPARE PARTS	
								P.N°
Mixer	Mixer	Remove and install a new mixer	2 mn	1 year	stop		Mixer	155.660.080
Meter	Flowmeter	Remove and clean	5 mn	2 months	stop	Appropriate cleaning solvent		
		Remove and install a new flowmeter	5 mn	1 year	stop		Flowmeter	055.660.001
Pilot valve	Pilot valve	Remove and change the cartridge	10 mn	1 year	stop		Cartridge	155.535.140
		Change the piston packing	10 mn	1 year	stop		Piston packing	029.711.302
Color changer	Pilot valve	Remove and change the cartridge	10 mn	1 year	stop		Cartridge	155.535.140
		Change the piston packing	10 mn	1 year	stop		Piston packing	029.711.302
AIRMIX® filter	Filter	Remove and clean the filter screen	5 mn	1 month	stop	Appropriate cleaning solvent	Screen # 6	129.609.908 (pack of 5)
		Remove and install a new filter	2 mn	6 months	stop		Seal	129.529.918
		Remove and install a new filter					Complete AIRMIX® filter	155.010.100