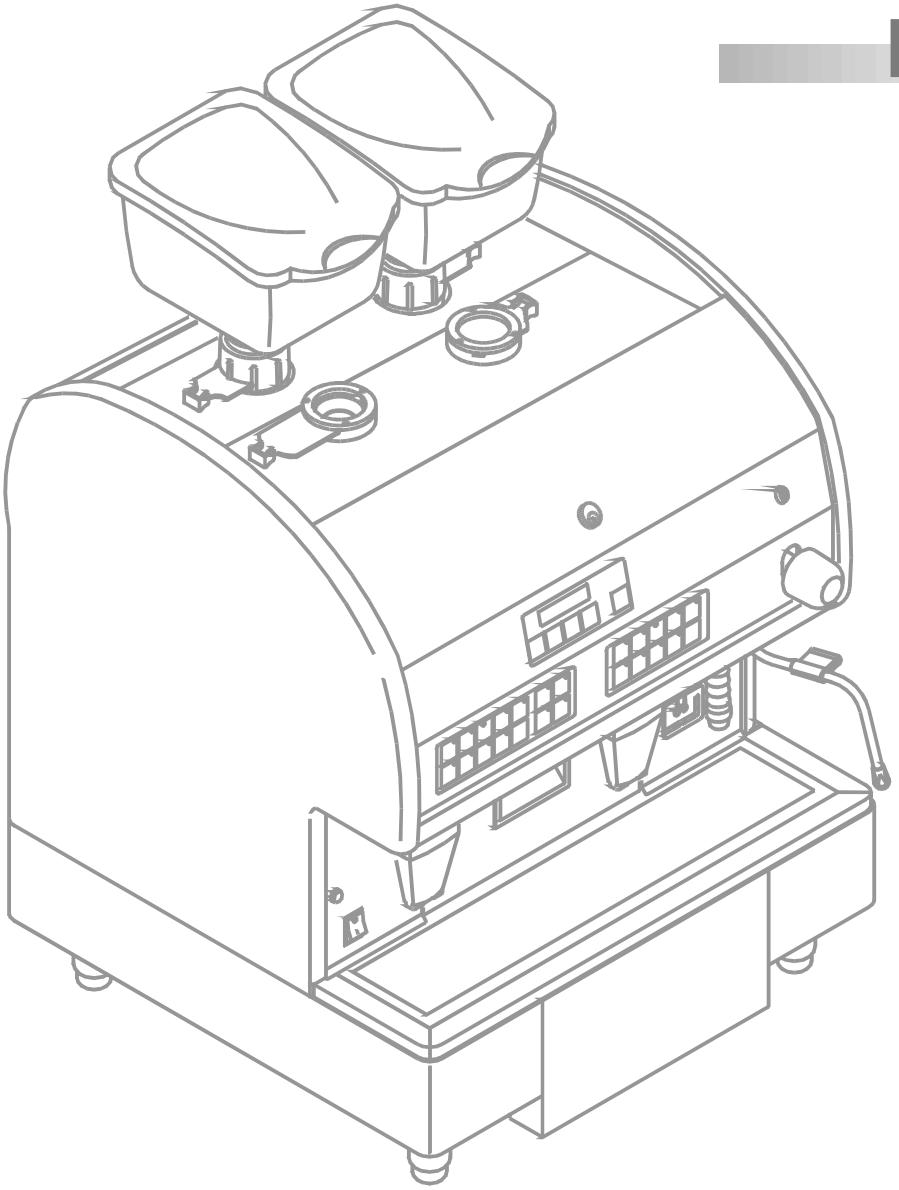
TECHNICAL MANUAL

English



ALL AUTOMATIC
COFFEE-MAKER

THIS MACHINE IS MADE IN COMPLIANCE WITH THE REQUIREMENTS OF THE FOLLOWING **CEE DIRECTIVES**

89/392/CEE - 89/336/CEE - 73/23/CEE

INTRODUCTION

The manufacturer reserves the right to make product improvements. It guarantees that this manual reflects the technological state at the time the machine was sold.

We are open to suggestions from technicians on any way that might improve the product and the manual.

GENERAL WARNINGS

- Once the packaging has been removed make certain the appliance is sound; if you have any doubts, check the fault and contact the retailer or manufacturer directly.
- Packaging must not be left where children can reach it as it is a potential hazard source.
- The appliance must be installed in compliance with the safety standards in force in the country of use.
- This appliance is completely safe only when it is connected to an effective earthing system that complies with the safety standards. Make sure that the mains power is sufficient for the energy required for the machine.
- It is unadvisable to use extension leads or electrical adaptors for multiple sockets. If it is essential to use them, use only single adaptors or leads that comply with the current safety standards. Never exceed the capacity indicated on the adaptor or leads, or the maximum power indicated on the adaptor.
- This appliance should only be used for what it has been designed for. Any other use is considered improper and consequently dangerous. The manufacturer cannot be held responsible for any damages caused due to an erroneous or irrational use. The technician must remind the user about the safety standards to ensure correct operation of the appliance.
- The use of an electrical appliance must be subject to the safety standards.
- If the customer decides he is not going to use the appliance for a long time, he must disconnect the power cable from the mains and empty it the water contained therein.
- To guarantee that the coffee-maker works properly and efficiently it is essential to follow the manufacturer's instructions, carrying out periodical maintenance and a check of all the safety devices.
- Always make sure that hands, or other parts of the body, never come within the range of the coffee dispensing spouts or those of steam and hot water since these can scald.
- The repair technician must inform the retailer or manufacturer promptly of any problems when installing or using the appliance.

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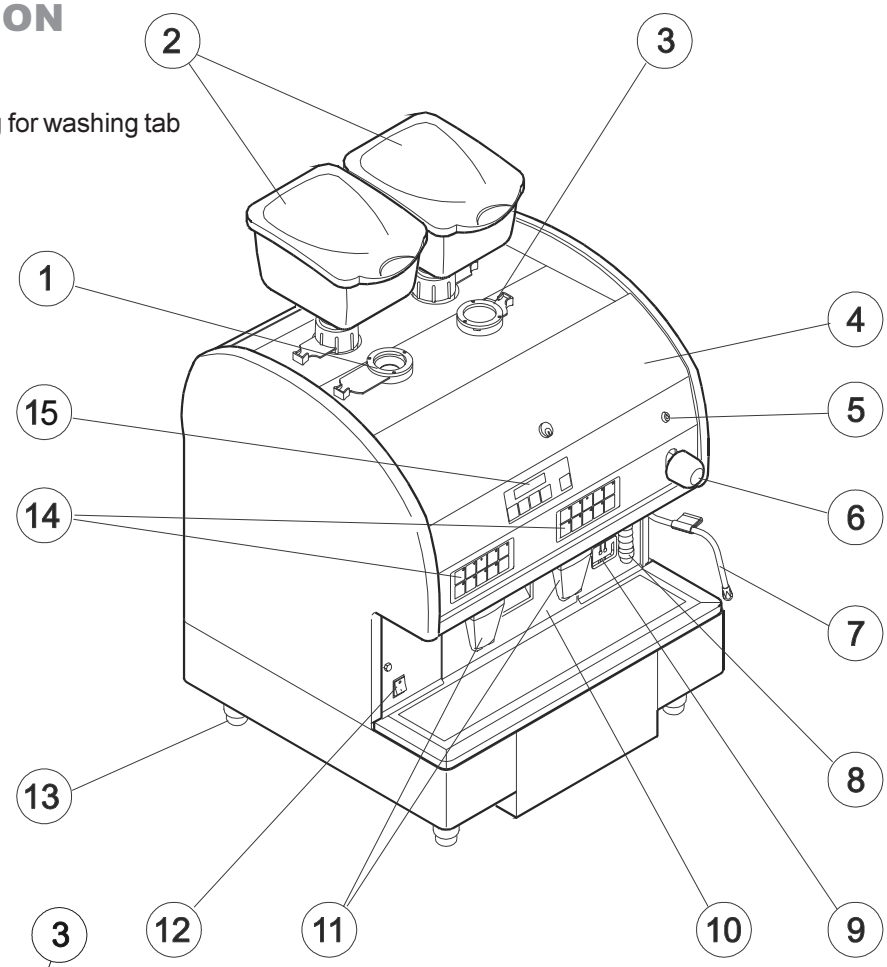
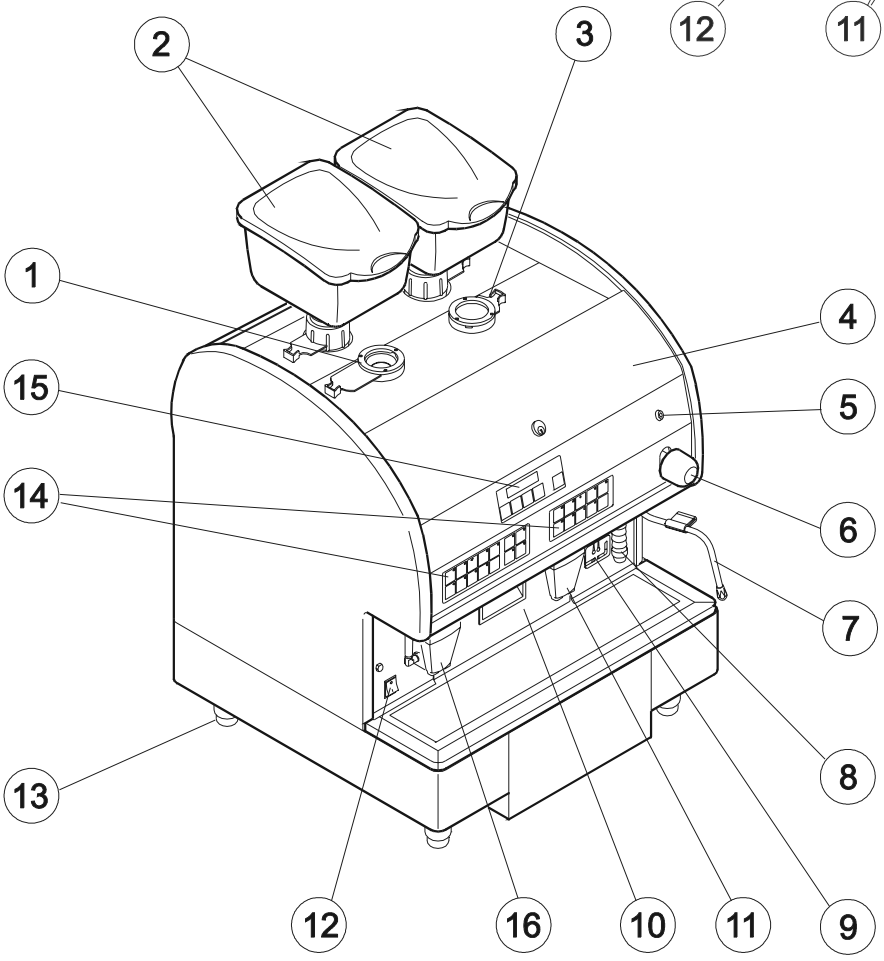
1. GENERAL DESCRIPTION

1. Opening for decaffeinated coffee/Opening for washing tab
2. Grinder-doser hopper
3. Opening for washing tab
4. Machine door
5. Programming key
6. Steam dispensing knob
7. Steam dispensing spout
8. Hot water dispensing pipe
9. Pressure gauge
10. Grouts box
11. Coffee dispensing spout
12. Main switch for switching on machine
13. Feet
14. Functions control touch pad
15. Touch pad panel display
16. Cappuccino-maker



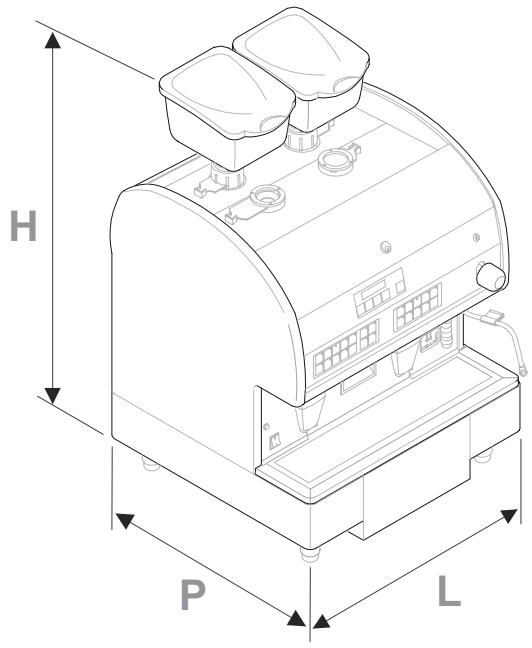
model **AK**



model **AKC**

2. TECHNICAL SPECIFICATIONS

Width (L)	57 cm
Depth (P)	54 cm
Height (H)	83 cm
Weight	94 kg

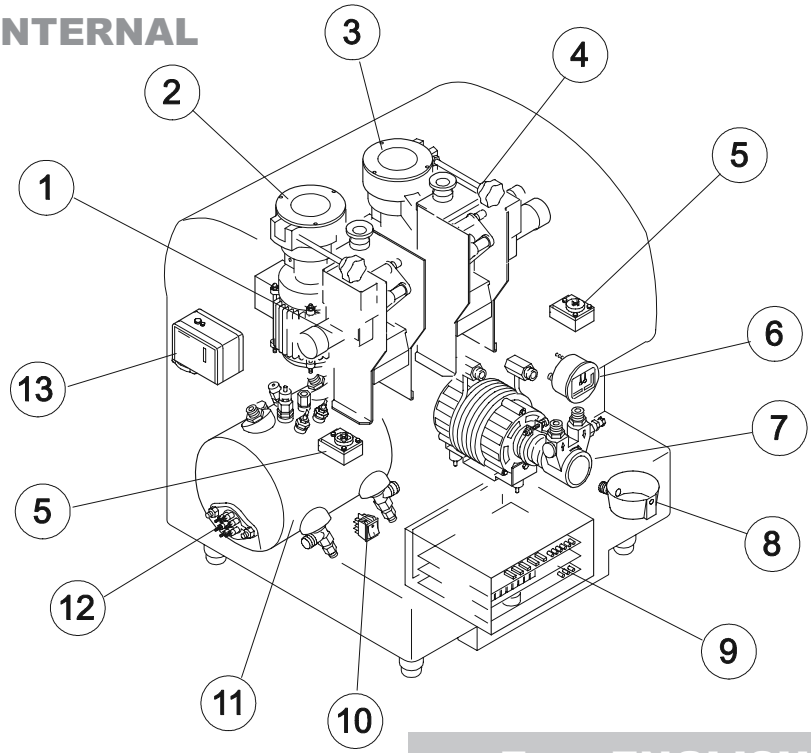


Supply voltage	230 / 240 / 400 V
Total input	4100 W (18 A)
Boiler heating element power	2700 W (12 A)
Grinder-doser motor power	350 W x 2 (1,5 A)
Pump motor power	260 W (1,2 A)
Unit heating element power	150 W x 2 (0,8 A)
Transformer/supply power	100 W (0,5 A)
Solenoid valves/control units power	100 W (0,5 A)

Boiler capacity	7 litres
Boiler working pressure	1 ÷ 1.2 bar
Pressure of water supplied	0 ÷ 5 bar
Pressure of dispensed coffee	8 ÷ 9 bar
Safety valve calibration	2 bar

3. DESCRIPTION OF THE INTERNAL COMPONENTS

1. Left dispensing unit
2. Left grinder-doser
3. Right grinder-doser
4. Right dispensing unit
5. Volumetric doser
6. Pressure gauge
7. Motor pump
8. Drainage trough
9. Electronic control boards
10. Main switch
11. Boiler
12. Boiler heating element
13. Pressure switch

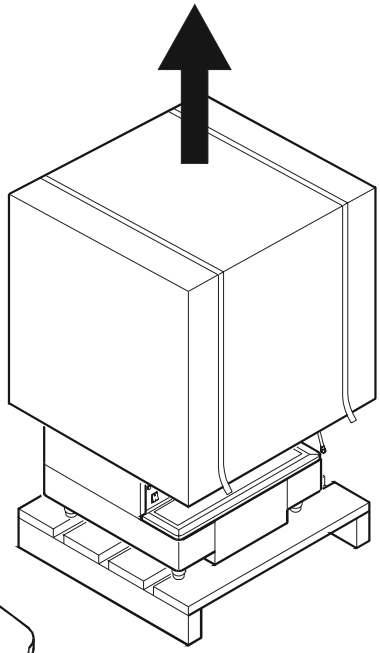


4. PREPARING THE MACHINE

4.1 Unpacking

Proceed as follows to unpack the machine correctly:

1) Cut the straps around the packaging.
2) Pull the box off upwards.
3) Position the machine on the worktop.

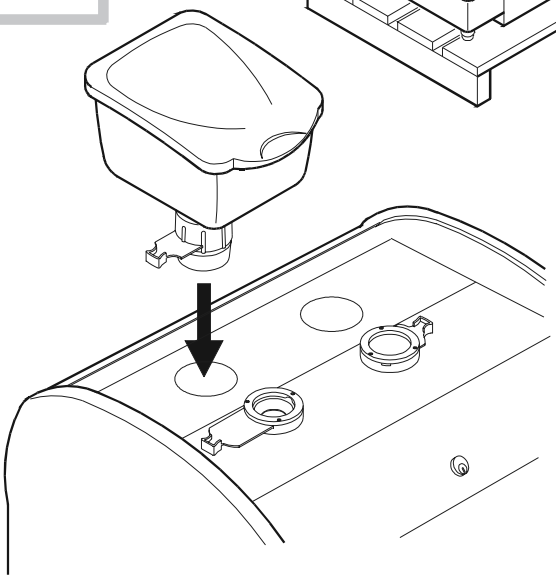


information

We recommend keeping the packaging until the guarantee period has expired.

4.2 Preparing the grinder-dosers

Fit the coffee hoppers in place on the two grinder-dosers.

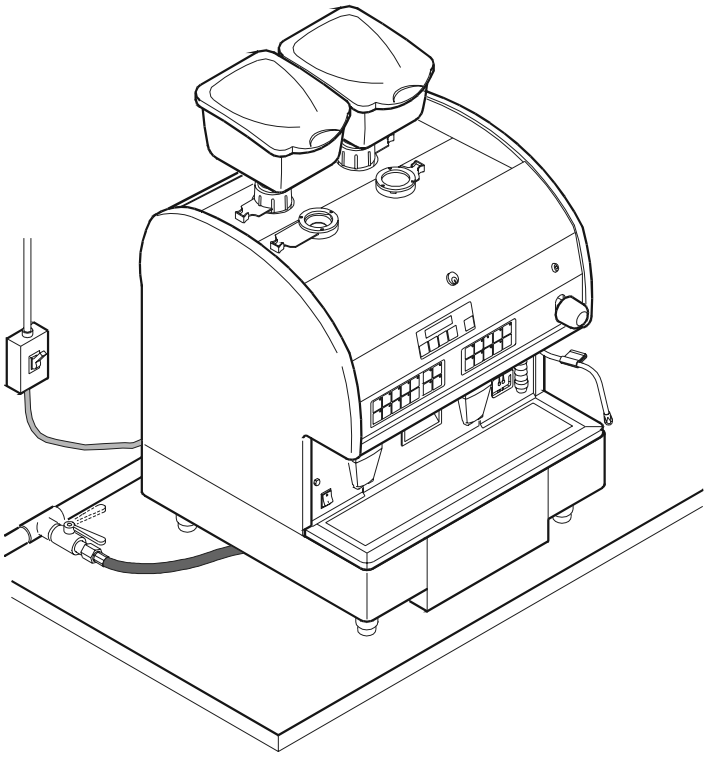


4.3 Positioning the machine

There must be plenty of room for the appliance and for using it correctly.

Prepare the place where the machine is to stand which must be able to hold support its weight.

It is important that all the terminals of the connections to the electricity mains and to the water mains are easy to reach and in the immediate vicinity of the machine.



attention

For the machine to work properly it must stand on a perfectly level surface.
Any corrections needed to level the machine can be done by adjusting the feet.

5. INSTALLING and MAINTENANCE

5.1 Hydraulic connection

The softener provided with the coffee-maker has been designed to function with a working pressure ranging between 1 and 9 bar. It must only be supplied with cold **drinking water.**

When connecting to the water mains, install a cock between the machine and the mains so as to be able to interrupt the supply of water to the appliance.

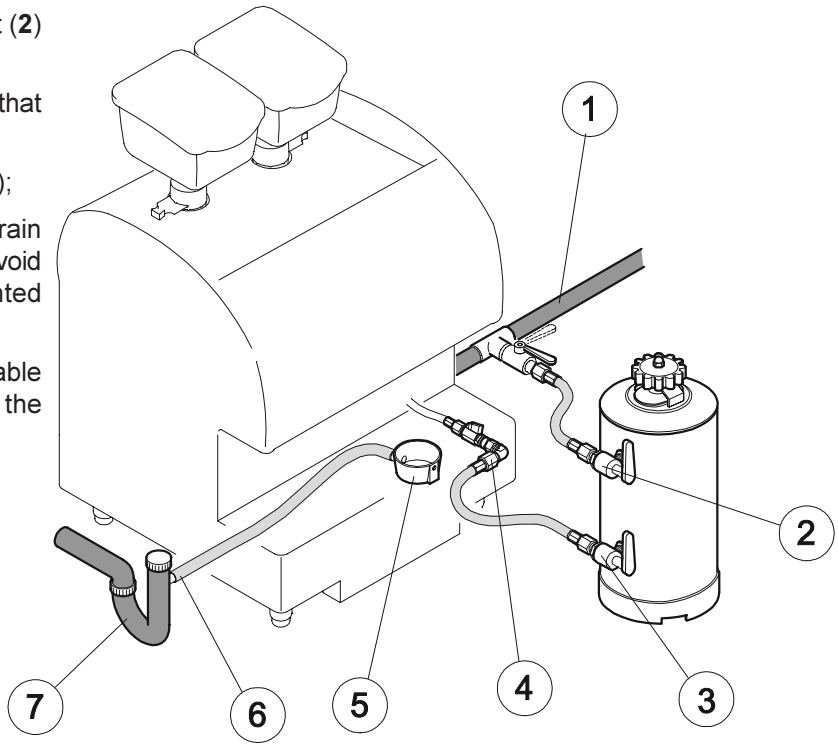
To stop the water from freezing, install the softener in a room where the temperature is higher than 0°C.

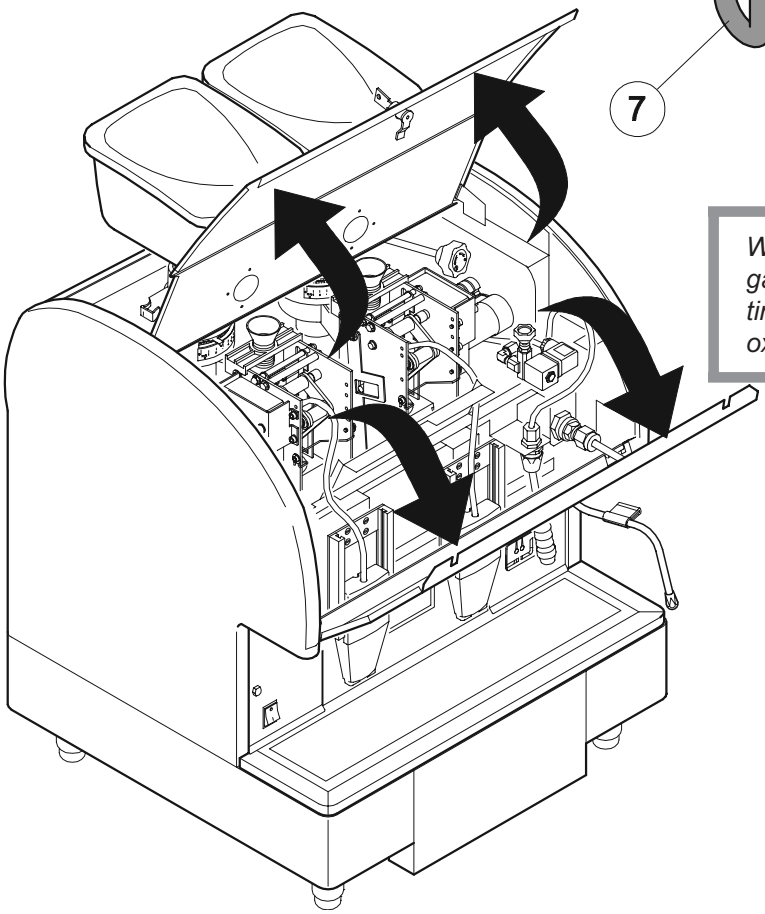
attention

To avoid damaging the outer casing, valves and cocks, install the softener where it is protected against accidental knocks.

Before connecting the pipes remove any rubber plugs from the softener cock couplings. To connect proceed as follows:

1) connect the water mains (**1**) to the softener inlet (**2**) using the flexible pipe provided;
2) rinse the softener resins checking that the water, that is initially yellow, becomes a clear colour;
3) connect the softener outlet (**3**) to the machine (**4**);
4) connect the machine drainage trough (**5**) to the drain (**6**) using the specific pipe provided, taking care to avoid sharp bends or throttlings and keeping it slanted enough for the waste water to drain away;
5) the drain (**6**) must be connected to an inspectionable trap (**7**) that can be cleaned regularly to prevent the reflux of bad smells.





attention

When plumbing the coffee-maker do not use iron or galvanised iron fittings because, with the passing of time, these materials can produce dangerous oxidations and seriously damage the machine.

5.2 Maintenance and cleaning

To make it easier to service and clean the inside of the machine you can remove the various parts of the external casing.

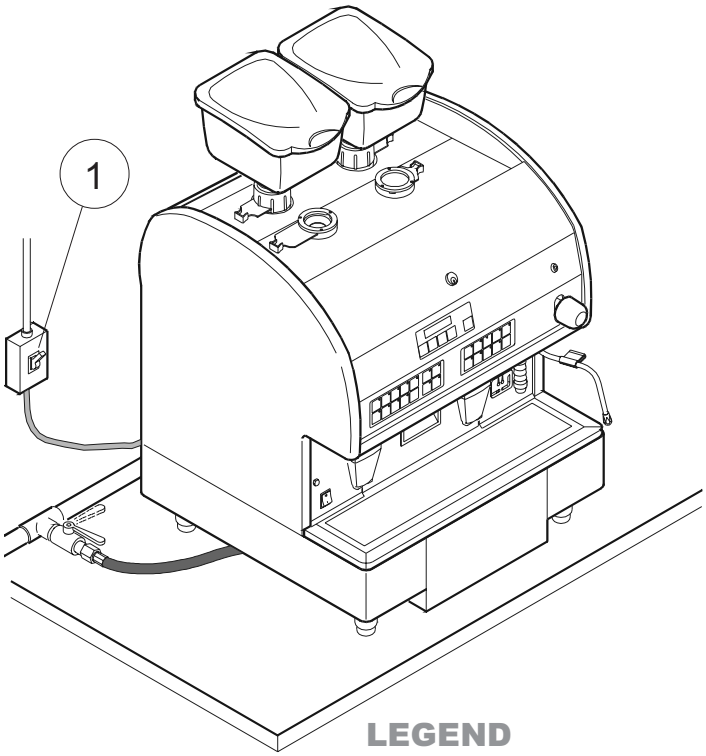
From the front, in particular, you can access the inside of the machine by opening the doors that cover the unit and push button panel.

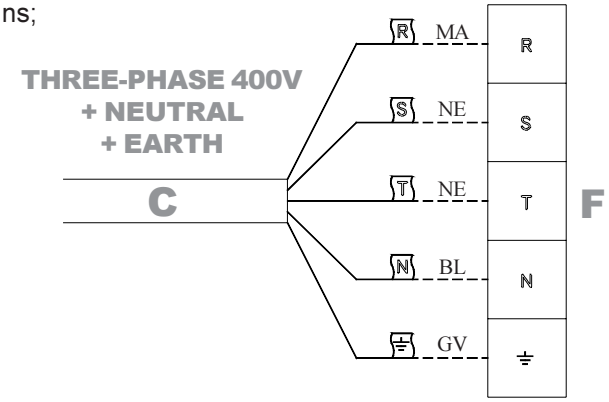
5.3 Electrical connection

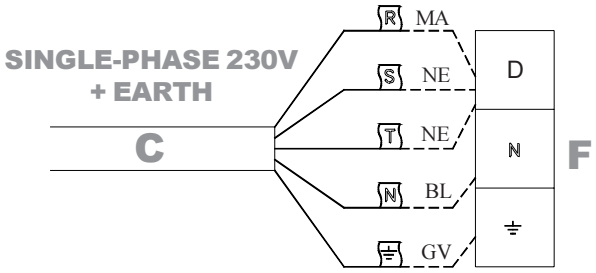
- Connect the cable leading from the machine to the electricity mains;
- Install a circuit breaker (**1**).

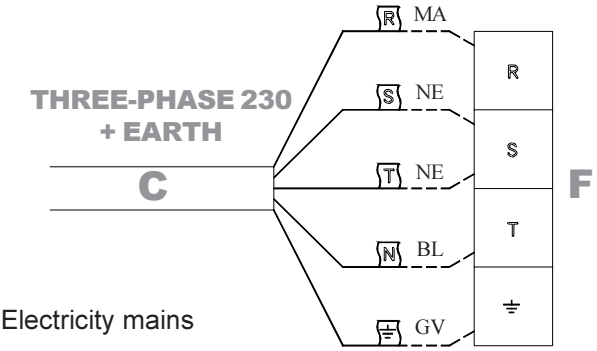
attention

Effect the electrical connections with the mains voltage disconnected.









LEGEND

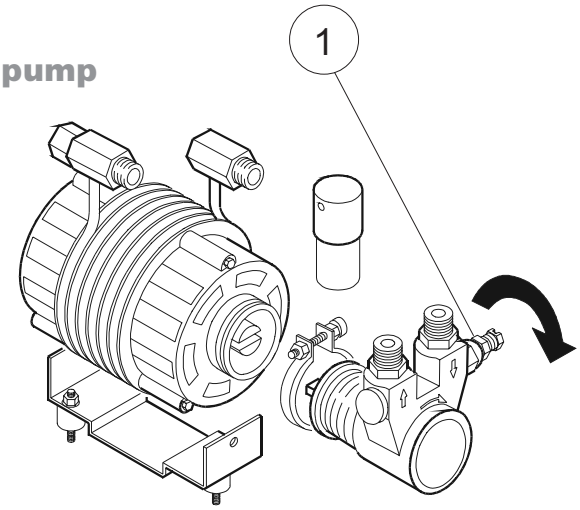
MA	Brown	**F**	Electricity mains
Ne	Black	**R-S-T**	Phase
BL	Blue	**D**	Phase
GV	Yellow-Green	**N**	Neutral
C	Machine cable	⏚	Earth

5.4 Switching the machine on and adjusting the pump

Switch the machine on as explained in the user manual.

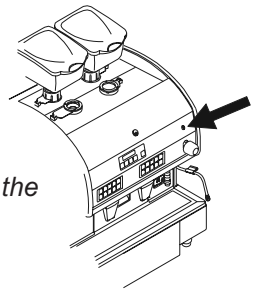
Effect several automatic washing cycles and check the correct working pressure on the gauge (8 - 9 bar).

If necessary, calibrate pressure by means of the by-pass adjustment screw (**1**) on the pump.



6. PROGRAMMING

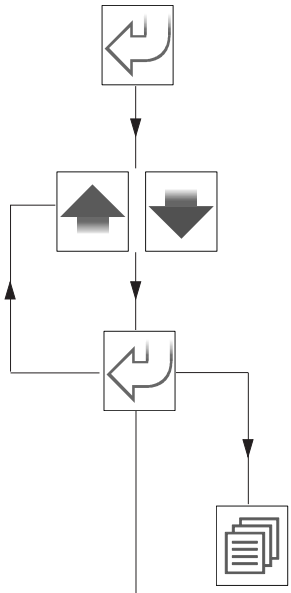
6.1 Programming MENU



PLEASE SELECT! T=XXX YY:YY:YY		*To enable programming turn the programming key clockwise.*
GRIND PROGRAMM.	**see par. 6.2**	*To enter programming, keep the MODE key pressed for about 4 seconds*
ADD H2O PROGRAMM	**see par. 6.3**	*Press the MODE key:* ***ADDED WATER*** *Progr. (optional)*
COFFEE DOSE PROG	**see par. 6.4**	*Press the MODE key:* ***COFFEE, MILK DOSES ETC.*** *Progr.*
CLOCK PROGRAMM	**see par. 6.5**	*Press the MODE key:* ***CLOCK*** *Progr.*
TEST INPUT	**see par. 6.6**	*Press the MODE key:* ***Test input:*** *check* ***PUSH BUTTONS*** *and* ***MICROSWITCHES***
DIAGNOSTICS	**see par. 6.7**	*Press the MODE key:* *check of the* ***INTERNAL COMPONENTS***
INFO READING	**see par. 6.8**	*Press the MODE key views* ***WORK DONE*** *(optional)*
PLEASE SELECT! T=XXX YY:YY:YY		*Press the MODE key:* ***EXIT*** *the "Programming" function*
PLEASE SELECT! T=XXX YY:YY:YY		*To exit programming, turn the programming key counter clockwise*

6.2 Programming GRINDING

6.2.1 GRINDING TIME



GRIND PROGRAMM

Press the ENTER key

GRIND PROGRAMM
GT 1ESP.GR1 = NN

Alter the grinding time by pressing the arrow keys
NN *is the grinding time (sec.) for one cup of espresso coffee*

GRIND PROGRAMM
GT 1ESP.GR1 = NN

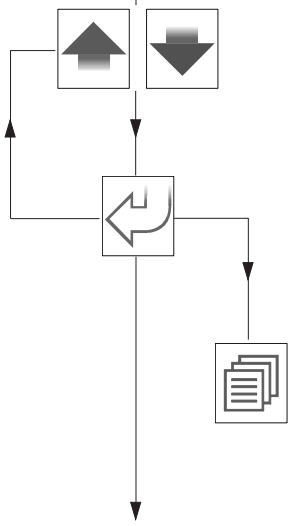
RECOMMENDED**: single = **2.5"** - double = **3.5"
Press ENTER to confirm and carry on programming the other selections

GRIND PROGRAMM
GT 2ESP.GR1 = NN

To exit programming, press MODE a few times until the script PLEASE SELECT! *in seen*

PLEASE SELECT!
T=XXX YY:YY:YY

6.2.2 PREINFUSION TIME



PREINFUS. PROGRAMM
PI 1ESP GR1 = N,N

Press the ENTER key
Alter the preinfusion time by pressing the arrow keys
NN *is the preinfusion time (sec.) for one cup of espresso coffee*

PREINFUS. PROGRAMM
PI 1ESP GR1 = N,N

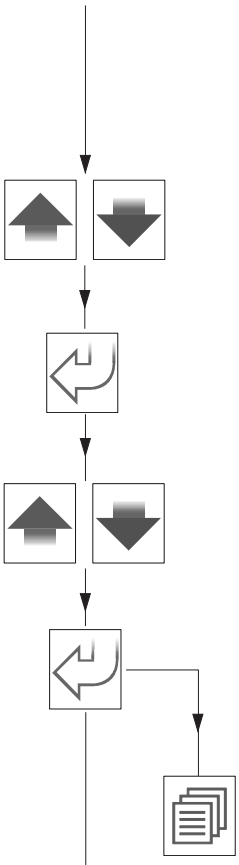
RECOMMENDED**: maximum time = **2.0"
Press ENTER to confirm and carry on programming the other selections

PREINFUS. PROGRAMM
PI 2ESP GR1 = N,N

To exit programming, press MODE a few times until the script PLEASE SELECT! *in seen*

PLEASE SELECT!
T=XXX YY:YY:YY

6.2.3 TEMPERATURE of the DISPENSING UNITS



PROGRAMMING
TEMP. GR1 NN

Press the ENTER key
Change the temperature by pressing the arrow keys
NN *is the temperature (°C) of the dispensing unit*

PROGRAMMING
TEMP. GR1 N,N

RECOMMENDED**: Minimum = **80°C** Maximum = **90°C
Press ENTER to confirm and carry on programming unit 2

PROGRAMMING
TEMP. GR2 NN

Change the temperature by pressing the arrow keys

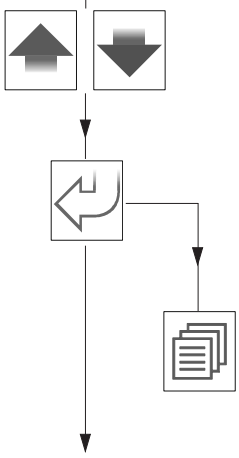
PROGRAMMING
TEMP. GR2 N,N

Press ENTER to confirm

PLEASE SELECT!
T=XXX YY:YY:YY

To exit programming, press MODE a few times until the script PLEASE SELECT! *in seen*

6.2.4 NUMBER of COFFEE GROUTS in the DRAWER



PROGRAMMING
N. GROUNDS = NN

Press the ENTER key
Alter the number of grouts pressing the arrow keys
NN *indicates the number of grants/spent coffee tabs in the drawer which vary by intervals of 10*

PROGRAMMING
N. GROUNDS = NN

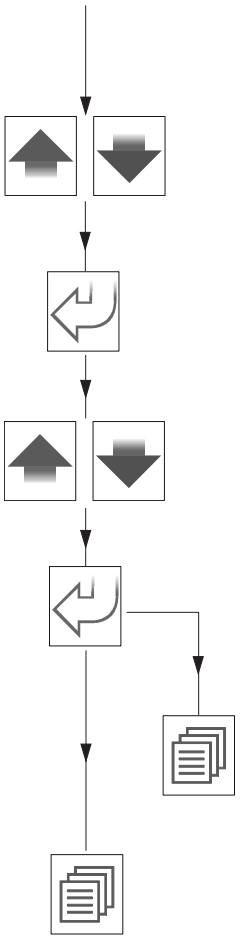
RECOMMENDED**: max. number of coffee grouts = **70
Press ENTER to confirm

PROGRAMMING
N. GROUNDS = NN

To exit programming, press MODE a few times until the script PLEASE SELECT! *in seen*

PLEASE SELECT!
T=XXX YY:YY:YY

6.2.5 COMPRESSION FORCE



PROGRAMMING
COMPR.OF SINGLES NNN

Pres the ENTER key
NN is the compression force of the dispensing unit
Modify force by pressing the arrow keys

PROGRAMMING
COMPR.OF SINGLES NNN

RECOMMENDED**: Maximum = **100

PROGRAMMING
COMPR.OF DOUBLES NNN

Modify force by pressing the arrow keys

PROGRAMMING
COMPR.OF DOUBLES NNN

RECOMMENDED**: Maximum = **100
Press ENTER to confirm and carry on programming the other selections

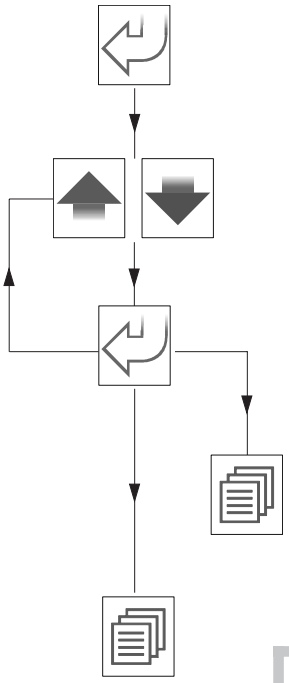
PROGRAMMING
COMPR.OF DOUBLES NNN

To exit programming, press MODE a few times until the script PLEASE SELECT! in seen

PLEASE SELECT!
T=XXX YY:YY:YY

Press the MODE key to enter ADDED WATER programming

6.3 Programming ADDED WATER (optional)



ADD H2O PROGRAMM.

Press the ENTER key

ADD H2O PROGRAMM.
ADD H2O 1MED.GR1 N

Enable Y or disable N the function by pressing the arrow keys

ADD H2O PROGRAMM.
ADD H2O 1MED.GR1 Y

Press ENTER to confirm and carry on programming the other selections

ADD H2O PROGRAMM.
ADD H2O 1LONG GR1 N

To exit programming, press MODE a few times until the script PLEASE SELECT! in seen

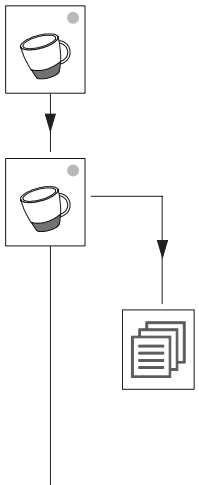
PLEASE SELECT!
T=XXX YY:YY:YY

information

Added water is possible only for medium and long coffee in the single or double versions

6.4 Programming the DOSES

6.4.1 DOSES of COFFEE, MILK and TEA



COFFEE DOSE PROG

Press the MODE key
Press the key of the dose wanted (e.g. 1 ESPRESSO or MILK or TEA) and wait for it to be dispensed

PROGRAMMING
1 ESPRESSO

Confirm the dose by pressing the DOSE key again and carry on programming the other doses

PROGRAMMING
1 ESPRESSO

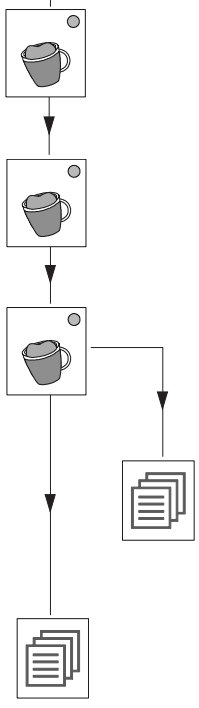
To exit programming, press MODE a few times until the script PLEASE SELECT! *in seen*

PLEASE SELECT!
T=XXX YY:YY:YY

information

When programming the doses, the selection LED flashes.
In the case of ADDED WATER function enabled, you have to confirm the dose of water by pressing the dose key again.

6.4.2 DOSES of CAPPUCCINO and "LATTE"



PROGRAMMING
CAPPUCCINO

Press the CAPPUCCINO or "LATTE" key and wait for the milk to be dispensed

PROGRAMMING
CAPPUCCINO

To confirm the dose of milk press the CAPPUCCINO or "LATTE" key again and wait for the coffee to be dispensed

PROGRAMMING
CAPPUCCINO

Confirm the dose of coffee by pressing the CAPPUCCINO or "LATTE" key again

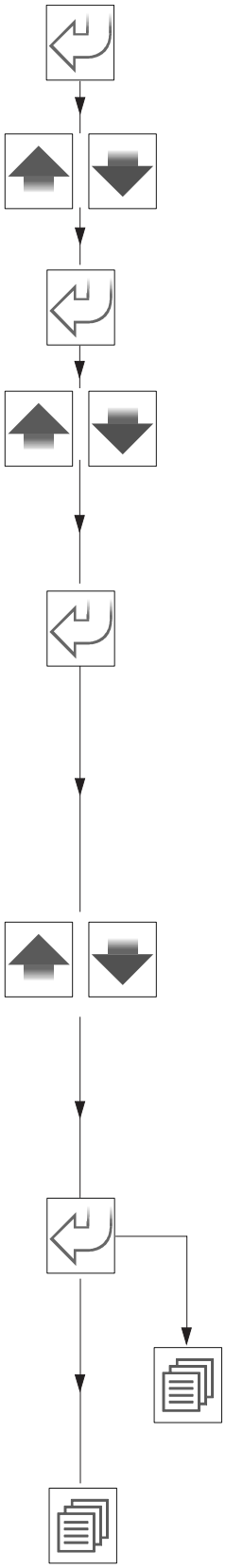
PLEASE SELECT!
T=XXX YY:YY:YY

To exit programming, press MODE a few times until the script PLEASE SELECT! *in seen*

information

When programming the doses, the selection LEDS flash.
Programming cannot be modifed for the decaffeinated, continuous dispensing and washing functions.

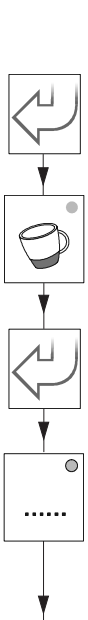
6.5 Programming the CLOCK



CLOCK PROGRAMM	*Press the ENTER key*
YEAR XX	*Press the arrow keys to change the **YEAR** settings (1=2001, 2=2002, 3=2003, ...)*
YEAR XX	*Press ENTER to confirm*
MONTH XX	*Press the arrow keys to change the **MONTH** settings*
MONTH XX	*Press ENTER to confirm*
DAY XX	*Press the arrow keys to change the **DAY** settings and confirm with ENTER*
WEEKDAY XXXXXX	*Press the arrow keys to change the **WEEKDAY** settings and confirm with ENTER*
HOURS XX	*Press the arrow keys to change the **HOUR** settings and confirm with ENTER*
MINUTES XX	*Press the arrow keys to change the **MINUTES** settings and confirm with ENTER*
SECONDS XX	*Press the arrow keys to change the **SECONDS** settings and confirm with ENTER*
CLOCK PROGRAMM	*To exit programming, press MODE a few times until the script* PLEASE SELECT! *in seen*
PLEASE SELECT! T=XXX YY:YY:YY	*Press the MODE key to enter TEST INPUT programming*

6.6 TEST INPUT

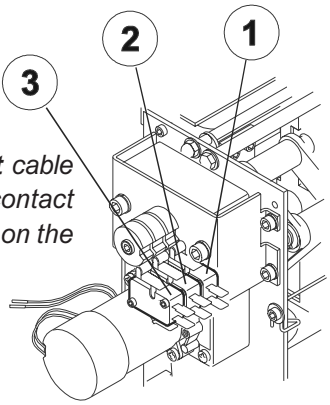
6.6.1 PUSH BUTTON PANEL functionality

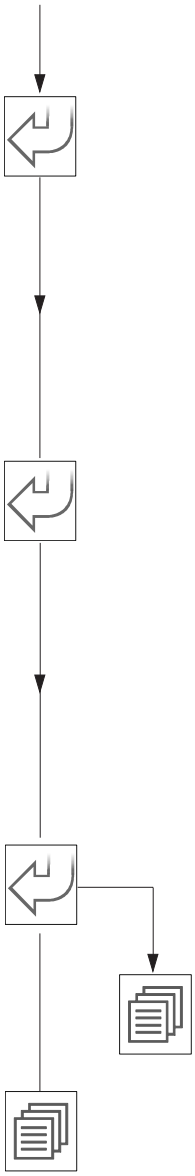


TEST INPUT	*Press the ENTER key*
TEST INPUT K 1 EX 0	*Press the 1 ESPRESSO key:test OK if display shows 1*
TEST INPUT K 1 EX 1	*Press ENTER to go to the next check*
TEST INPUT K 1 ME 0	*Likewise, check all the other buttons of the touch pad for group 1 and group 2.*
TEST INPUT 0	

6.6.2 MICROSWITCH functionality

TEST INPUT MRPG1 1	*Press the ENTER key.* *Click the lever of the **rest microswitch** (**1**):* *test OK if the value on the display changes from 1 to 0*
TEST INPUT MRPG1 0	*Press the ENTER key to go to the next check*
TEST INPUT MCG1 0	*Disconnect the **micro switch unit** cable (**2**) and connect it to the central contact of the micro: test OK if the value on the display changes from 0 to 1*
TEST INPUT MCG1 1	*Press the ENTER key to go to the next check*
TEST INPUT MFCG1 0	*Disconnect the **limit switch micro** cable (**3**) and connect it to the central contact of the micro: test OK if the value on the display changes from 0 to 1*
TEST INPUT MFCG1 1	*Proceed in the same way to check dispensing unit 2*
TEST INPUT M CASS 1	*Press the ENTER key. To check the **grouts microswitch**, open the coffee grouts drawer: test OK if the display shows 0*
TEST INPUT M CASS 0	*Press the ENTER key to go to the next check*





TEST INPUT
KEY 0

TEST INPUT
KEY 1

TEST INPUT
IN AUX 1 0

TEST INPUT
IN AUX 2 0

TEST INPUT
CH 1 0

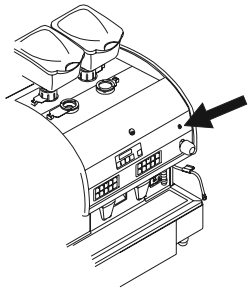
TEST INPUT
CH 1 1

TEST INPUT
CH 2 0

TEST INPUT
CH 2 1

PLEASE SELECT!
T=XXX YY:YY:YY

*For the **programming key** test, turn the keycounter clockwise: test OK if the display shows* 1

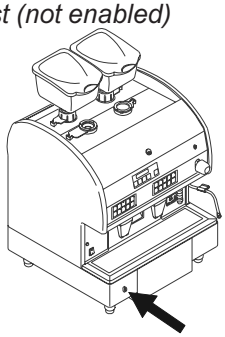


Press the ENTER key to go to the next check

Press the ENTER key: auxiliary test (not enabled)

Press the ENTER key: auxiliary test (not enabled)

*For the **waiter key** test, insert the key in the cylinder: test OK if the display shows* 1



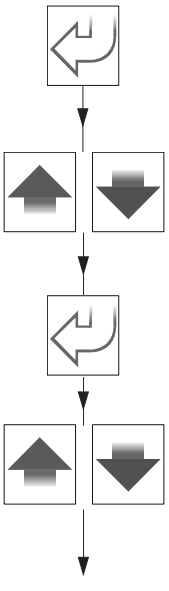
Press the ENTER key to go to the next check

Effect the waiter key test by means of CH 2 - CH 3 - CH 4

To exit programming, press MODE a few times until the script PLEASE SELECT! *in seen*

To move on to DIAGNOSTICS *, press MODE*

6.7 Checking COMPONENT functionality



DIAGNOSTICS

Press the ENTER key

DIAGNOSTICS
PSTN MTR GR1

*Functionality test of the **dispensing unit 1 motor piston**. Press the ARROW keys to check correct motor operation*

DIAGNOSTICS
PSTN MTR GR1

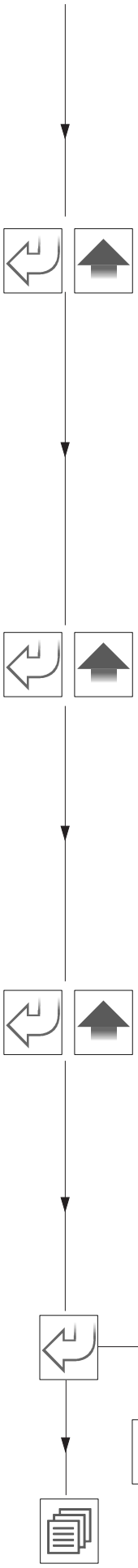
Press the ENTER key to go to the next check

DIAGNOSTICS
PSTN MTR GR2

*Functionality test of the **dispensing unit 2 motor piston**. Press the ARROW keys to check correct motor operation*

DIAGNOSTICS
PSTN MTR GR2

Press the ENTER key to go to the next check



DIAGNOSTICS GRINDER GR 1 - 2

Using the ENTER and ARROW keys carry out the functionality tests on the following components:

Grinder-doser of the dispensing unit 1 and 2

DIAGNOSTICS PUMP

Pump functionality

DIAGNOSTICS REL GR 1 - 2

Solenoid valve of the dispensing unit 1 and 2

DIAGNOSTICS REL BLR

Solenoid valve for filling the boiler with water

DIAGNOSTICS REL STEAM

Steam solenoid valve *(if it exists)*

DIAGNOSTICS TEMP GR 1 - 2

Heating element relay of the dispensing unit 1 and 2

(after removing the front base panel and the electronics protection, verify on the electronic board if the LED is off, cfr. paragrap 11.6 of the wiring diagrams)

DIAGNOSTICS REL H2O

Water relay

DIAGNOSTICS AUX REL 1 - 2

DIAGNOSTICS AUX3 REL

DIAGNOSTICS REL.ADD H2O GR 1 - 2

Repeat the same steps for the following auxiliary systems if they are enabled

DIAGNOSTICS EV 1

Cappuccino-maker steam suction solenoid valve

DIAGNOSTICS EV 2

Cappuccino-maker air solenoid valve

DIAGNOSTICS EV 3

Cappuccino-maker breather solenoid valve

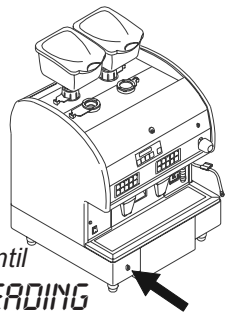
DIAGNOSTICS BUZZER

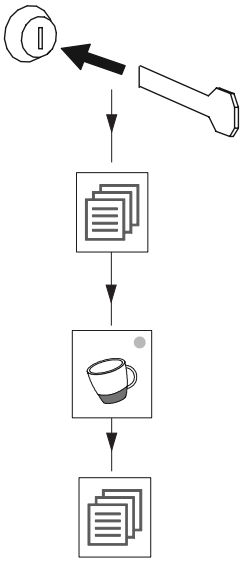
Alarm buzzer *(if it exists)*

PLEASE SELECT!
T=XXX YY:YY:YY

To exit programming, press MODE a few times until the script PLEASE SELECT! *in seen*

6.8 INFO READING (optional)





6.8.1 Viewing WAITER KEY data

PLEASE SELECT!
T=XXX YY:YY:YY

*Enter the waiter key: e.g. waiter **A***
Press MODE for at least 5 seconds until the display shows the script INFO READING

INFO READING

Press the DOSE key wanted (e.g. 1 espresso):
NN *is the number of espresso coffees dispensed with that waiter key.*

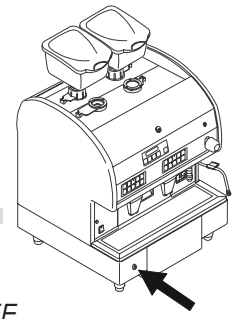
INFO READING
1 ESPRESSO NN

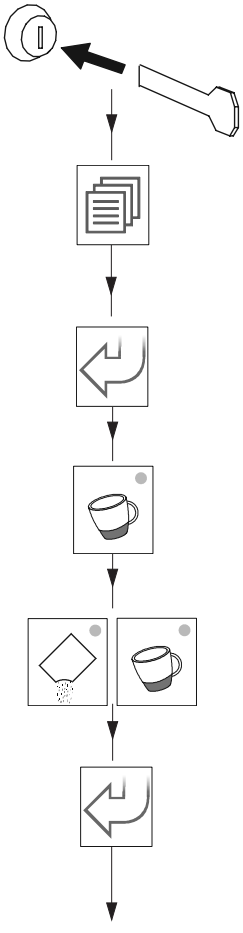
Repeat for the DOSE keys wanted
Press MODE to exit

PLEASE SELECT!
T=XXX YY:YY:YY

information

*Reading is allowed only of the data relative to the waiter key inserted: **A-B-D-E-H-K-L-M-N-P-Q-R-S**.*





6.8.2 Viewing data with the PERSON IN CHARGE KEY (T) and with the OWNER KEY (U)

PLEASE SELECT!
T=XXX YY:YY:YY

*Insert either key **T** or **U** in the cylinder.*
Do not turn the key with the position OFF.
Press MODE for at least 5 seconds until the display shows the script INFO READING

INFO READING

To select the key wanted, press ENTER repeatedly

WAITER H

Press the DOSE key wanted (e.g. 1 espresso):
NN *is the number of espresso coffees dispensed with the waiter key inserted*

INFO READING
1 ESPRESSO NN

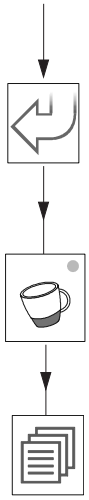
To see how many decaffeinated coffees have been made, press the DECA+DOSE keys wanted simultaneously

WAITER H
1 ESPR DECAF GR1

Press ENTER repeatedly to select another key

WAITER L

By pressing ENTER repeatedly at the end of all the keys you can view all available data



TOTAL

When you press the DOSE key wanted (e.g. 1 espresso), it is possible to view all the dispensings made by all the waiter keys and by the person in charge key

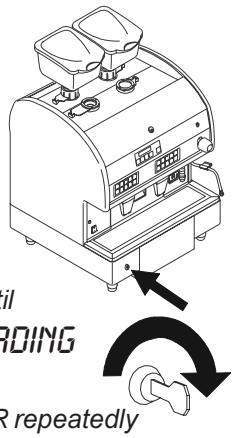
TOTAL COFFEE
1 ESPRESSO 1 NN

Repeat for the DOSE keys wanted
Press MODE to exit

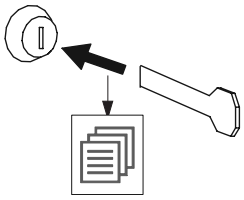
PLEASE SELECT!
T=XXX YY:YY:YY

information

*The person in charge key (**T**) and the owner key (**U**) can be used to read all machine data relative to the waiter keys and the person in charge key.*
*All dispensings made with the owner key (**U**) are not counted.*



6.8.3 RESETTING



PLEASE SELECT!
T=XXX YY:YY:YY

*Insert either key **T** or **U** in the cylinder*
Turn the key to the ON POSITION.
Press MODE for at least 5 seconds until the display shows the script INFO READING

INFO READING

To select the key wanted, press ENTER repeatedly

WAITER X

To revert all data pertaining to that specific key back to zero, press the arrow down botton for at least 5 seconds until REV. TO ZERO ? *is shown on the display*

WAITER X
REV. TO ZERO ?

By pressing ENTER again you can repeat the operation for the other keys.

TOTAL

By pressing ENTER repeatedly at the end of all the keys it is possible to view all the data.

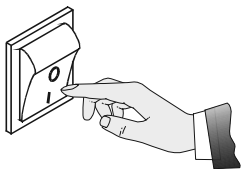
TOTAL
REV. TO ZERO ?

To reset the data of all the keys keep the DOWN ARROW pressed for at least 5 seconds.
Press MODE to exit

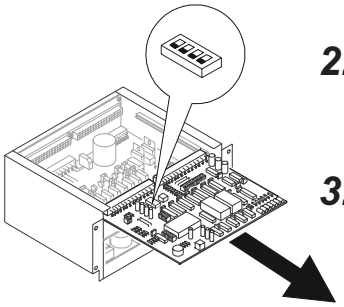
PLEASE SELECT!
T=XXX YY:YY:YY

7. MACHINE CONFIGURATION

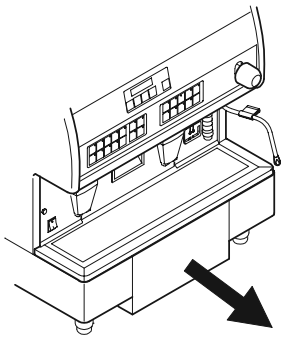
7.1 PREPARING the MACHINE



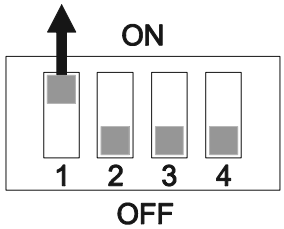
1. *Turn the machine off with the main switch*



2. *Remove the front base of the body and the front panel protecting the electronic cards*

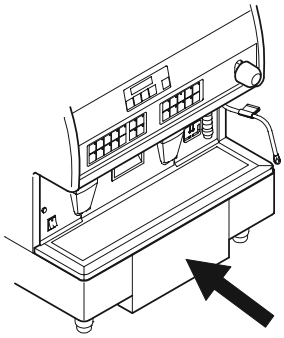


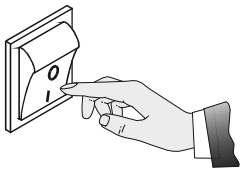
3. *Pull the LOGIC card out*



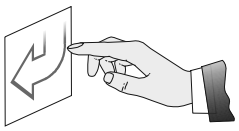
4. *Put switch 1 to position ON*

5. *Put the LOGIC card back in place*



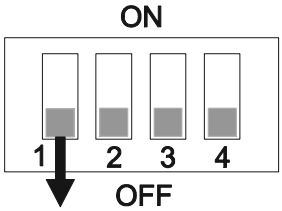


6. *Put the front protection panel back*

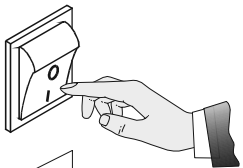


7. *Switch the machine on and start it with the main switch and the ENTER key*

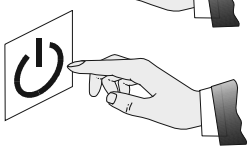
8. *Modify the machine's configuration parameters as explained in par. 7.2 on the next page*



9. *Switch the machine off and after removing the front protection, put the logic card switch back to the OFF position*

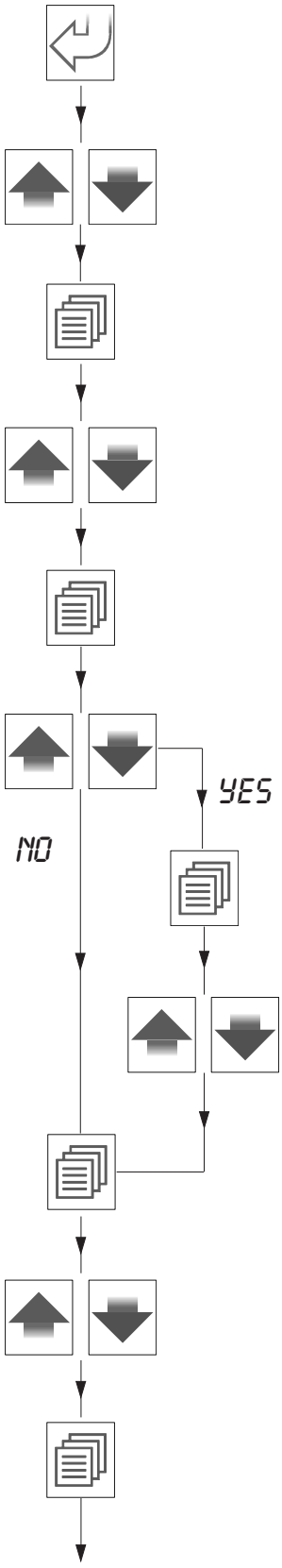


10. *Plug the electronic card in again, put the protection and front body base back*



11. *Start the machine again via the main switch and the start key*

7.2 MACHINE CONFIGURATION



CONFIGURATION
KEY N

*After carrying ont all operations as shown under **paragraph 7.1**, press ENTER*

By pressing the ARROWS buttons, habilitate the machine for the use of waiter keys, manager and owner keys N *= NO,* Y *= YES*

CONFIGURATION
KEY Y

To confirm, press MODE

CONFIGURATION
TOKENS N

By pressing the ARROWS buttons, habilitate the machine for the use of a token or "credit card" system (optional)

CONFIGURATION
TOKENS Y

To confirm, press MODE

CONFIGURATION
MILK WASH N

By pressing the ARROWS buttons, habilitate the machine for the requeit of the milk circuit washing cycle

CONFIGURATION
MILK WASH Y

To confirm, press MODE

CONFIGURATION
WASHING TIME : XX:YY

*If a wash request is made, by pressing the arrow keys the interval of time from the last time Milk, "Latte" or Cappuccino were dispensed is modified (*XX *are the hours,* YY *are the minutes - variation with 30-minute intervals)*

CONFIGURATION
WASHING TIME : XX:YY

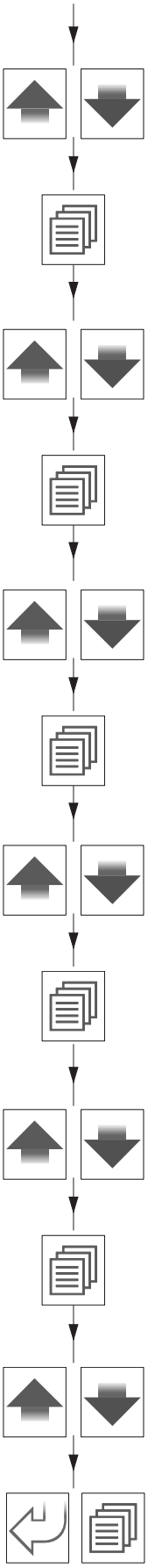
To confirm, press MODE

CONFIGURATION
WASHING STANDARD

By pressing the ARROWS buttons, habilitate the machine for the requeit of the washing cycle (Standard or American system)

CONFIGURATION
WASHING AMERICA

To confirm, press MODE

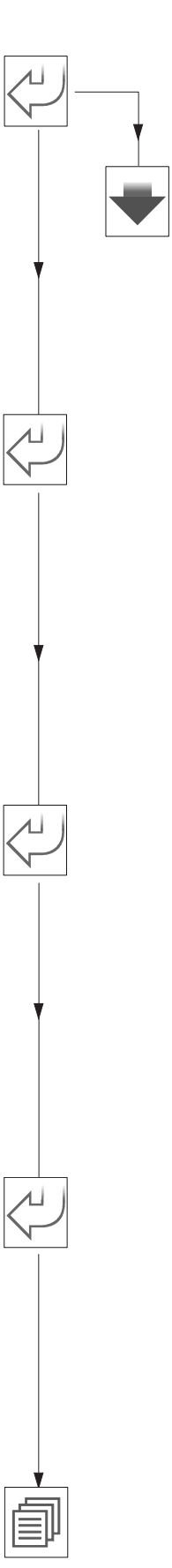


CONFIGURATION LANGUAGE ITALIAN	*Press the arrow keys to set the language wanted (Italian, English, French, German)*
CONFIGURATION LANGUAGE XXXXXXX	*To confirm, press MODE*
CONFIGURATION GR 1 N	*By pressing the ARROWS buttons, to enable or disable use of dispensing unit 1*
CONFIGURATION GR 1 Y	*To confirm, press MODE*
CONFIGURATION GR 2 N	*By pressing the ARROWS buttons, to enable or disable use of dispensing unit 2*
CONFIGURATION GR 2 Y	*To confirm, press MODE*
CONFIGURATION DOUBLE 2LONG GR1 N	*By pressing the ARROWS buttons, enables the brening of 2 automatic dispensings of a double long coffee (optional)*
CONFIGURATION DOUBLE 2LONG GR1 Y	*To confirm, press MODE*
CONFIGURATION DOUBLE 2LONG GR2 N	*By pressing the ARROWS buttons, enables the brening of 2 automatic dispensings of a double long coffee*
CONFIGURATION DOUBLE 2LONG GR2 Y	*To confirm, press MODE*
CONFIGURATION PRESET VALUES N	*By pressing the ARROWS buttons, it enables loading of the machine configuration default values*
CONFIGURATION PRESET VALUES Y	*To confirm the entire configuration, press simultaneously the buttons ENTER + MODE*

attention

To confirm the entire configuration, press simultaneously the buttons ENTER + MODE

7.3 MACHINE SIGNALS and WARNINGS



TOTAL ALARMS:
PISTON MOTOR GR1 NN

Press the ENTER key
NNN *is the number of signals*

TOTAL ALARMS :
PISTON MOTOR GR1 00

To reset, keep the down arrow pressed for at least 5 seconds (command applicable for them all)

TOTAL ALARMS:
BOILER LEVEL NN

To visualize the other information, press ENTER. To revert to zero, press the ARROW DOWN button for at least 5 seconds

TOTAL ALARMS :
NO COFFEE GR1 NN

TOTAL ALARMS :
VOL. DOSER GR1 NN

TOTAL ALARMS:
COMPRESSION GR1 NN

TOTAL ALARMS:
SAFETY NN

TOTAL ALARMS :
TEMP. GR. 1 NN

TOTAL ALARMS :
BOILER SENSOR NN

TOTAL ALARMS:
PSTN MTR GR2 NN

TOTAL ALARMS:
NO COFFEE GR2 NN

TOTAL ALARMS:
VOL. DOSER GR2 NN

TOTAL ALARMS:
COMPRESSION GR2 NN

TOTAL ALARMS:
TEMP. GR. 2 NN

Press the MODE key to exit

7.4 MACHINE CYCLE COUNTING

Press the ENTER key

NNN is the total number of coffees dispensed

To reset, keep the down arrow pressed for at least 5 seconds

To visualize the other information, press ENTER. To revert to zero, press the ARROW DOWN button for at least 5 seconds.

NNN is the total number of ***COFFEES*** *dispensed*

NNN is the total number of ***DECAFFEINATED*** *coffees dispensed*

NNN is the total number of ***TEAS*** *dispensed*

NNN is the total number of ***CAPPUCCINOS*** *dispensed*

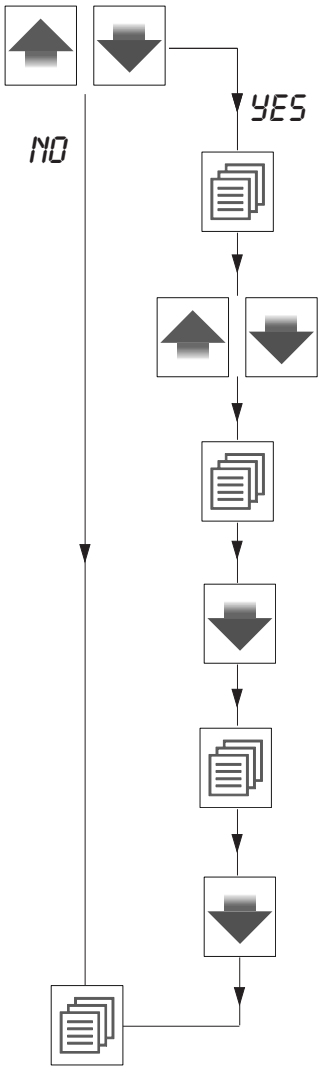
NNN is the total number of ***MILKS*** *dispensed*

NNN is the total number of ***"LATTE"*** *dispensed*

To exit programming, press MODE a few times until the script PLEASE SELECT! in seen

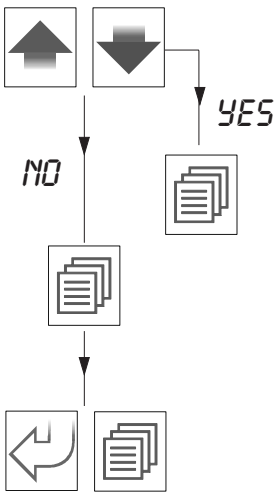
To proceed with the configuration of the machine, press MODE

7.5 CONFIGURATION OF THE SERVICING WARNING



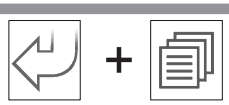
CONFIGURATION SERVICE REQD N	*To configurate the servicing warning, press the ARROWS buttons*
CONFIGURATION SERVICE REQD Y	*To confirm, press MODE*
CONFIGURATION SERVICE AT NN.NNN	*By means of the ARROWS button, it is possible to set the total number of cycles of group 1 and group 2. NN.NNN is variable from 50,000 to 250,000*
CONFIGURATION SERVICE AT NN.NNN	*To confirm, press MODE*
CONFIGURATION CYCLES 1 NN.NNN	*To revert to zero the number of cycles carried out by group 1 since the last servicing of the machine, press the ARROW DOWN button for at least 5 seconds*
CONFIGURATION REV. TO NN.NNN	*To confirm, press MODE*
CONFIGURATION CYCLES 2 NN.NNN	*To revert to zero the number of cycles carried out by group 1 since the last servicing of the machine, press the ARROW DOWN button for at least 5 seconds*
CONFIGURATION REV. TO NN.NNN	*To confirm, press MODE*

7.6 BUTTON CONFIGURATION



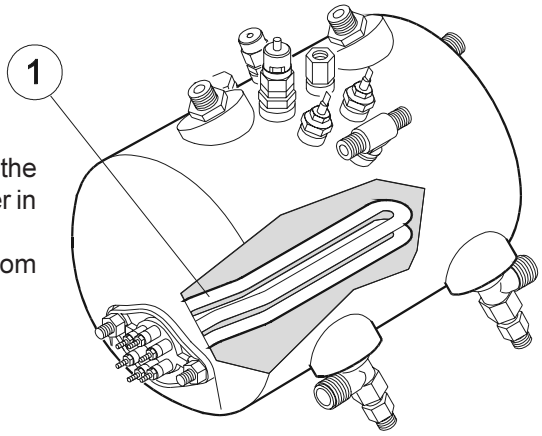
CONFIGURATION STANDARD BOTTONS	*To configurate the number of buttons (Standard or American), press the ARROWS button*
CONFIGURATION AMERICA BOTTONS	*To confirm, press MODE*
CONFIGURATION AMERICA BOTTONS	*To confirm the entire configuration, press simultaneously the buttons ENTER + MODE*
PLEASE SELECT! T=XXX YY:YY:YY	*Turn the machine off and set the switch to the OFF position as ahown in paragraph 7.1*

attenzione

To confirm the entire configuration, press simultaneously the buttons ENTER + MODE + 

8. MACHINE COMPONENTS

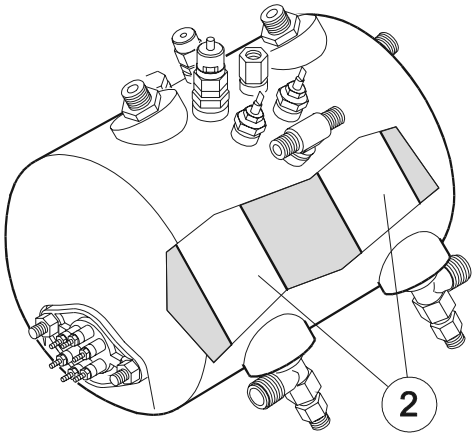
8.1 Boiler



The boiler is made to copper plate inside which the heat exchangers and the electric heating element (**1**) are housed. The heating element heats the water in the boiler.

Water to make coffee is taken from the heat exchanger while it is taken from the boiler if hot water is wanted. Steam is taken from the top of the boiler.

8.2 Heat exchanger

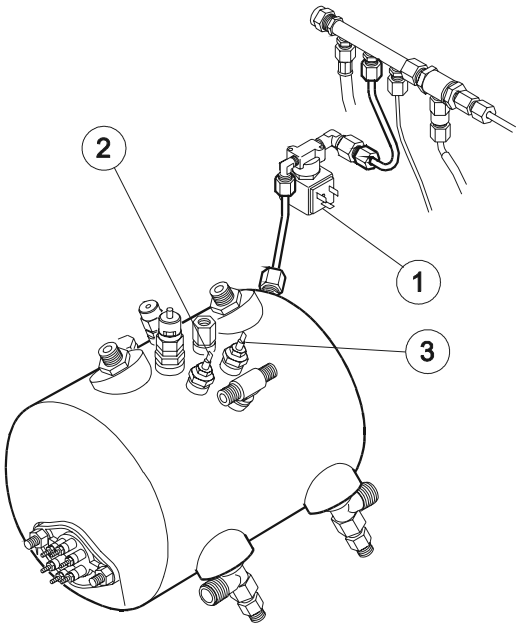


The heat exchangers (**2**) make it possible to heat the water up to an ideal temperature for a perfect cup of espresso coffee.

The heat exchanger's function is to produce an exchange of thermal energy between the water inside it and the water inside the boiler.

This component cannot be replaced.

8.3 Automatic Water Inlet

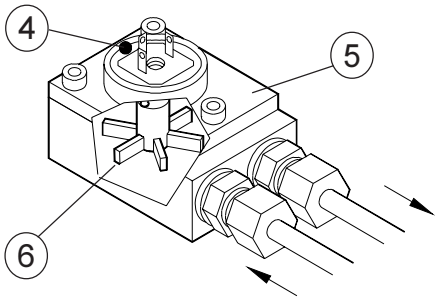


The AEA system (automatic water inlet) is used to control boiler level. It consists of:

- a working level probe (**3**);
- a minimum safety level probe (**2**);
- an electronic level regulator in the electronic control unit;
- a hydraulic circuit with a solenoid valve (**1**) controlled by the control unit.

The level probes act as a pole in the low voltage electrical circuit: when the level of the water drops the circuit interrupts itself and the electronic control unit sends an impulse to the AEA's solenoid valve (**1**) and to the motor pump which sees to the automatic fillng up with water, keeping the level in the boiler constant.

8.4 Volumetric doser



The volumetric doser (**5**) measures the quantity of water sent to the unit for making espresso coffee.

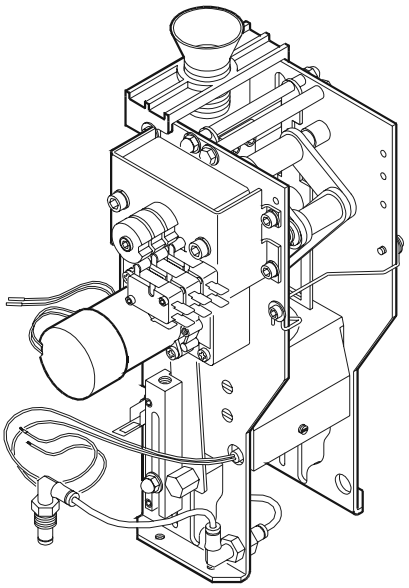
It consists of a Hall-effect type turbine (**6**) which, by turning, generates an electric impulse that is sent to the electronic control unit.

This impulse is read by the control unit and stored during dose programming.

Each flash of the LED (**4**) on the volumetric doser indicates that the doser is working properly.

8.5 Dispensing unit

The dispensing unit OT “group” is the “heart” of the coffee-maker. It has a piston that presses the coffee for infusion and a movable arm that acts as the stopper. The piston and stopper are controlled by a D.C. motor.

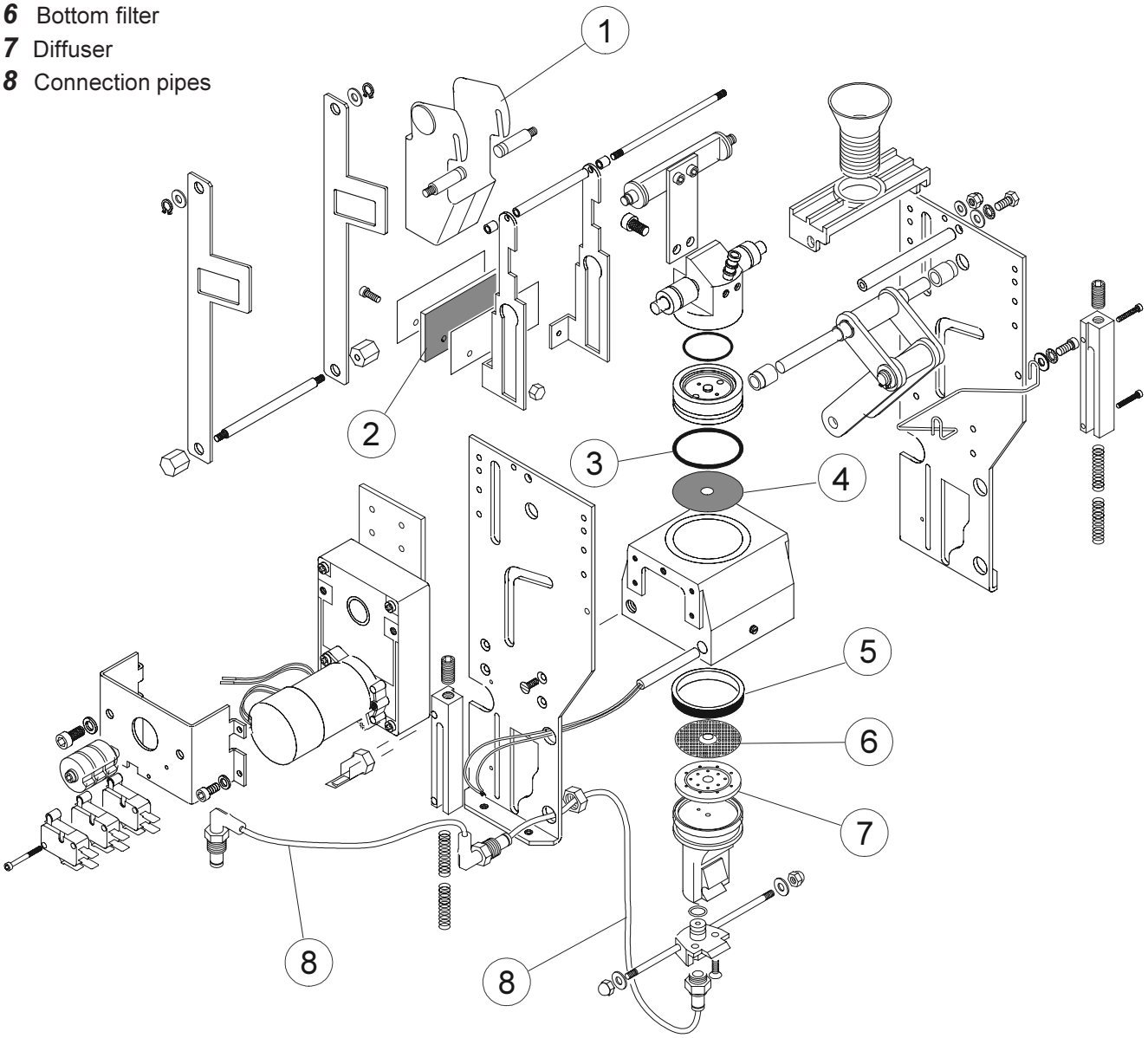


The mechanical wear of some components over time alters the operating conditions of the internal parts, modifying the machine’s original settings. To avoid this happening there are some adjustment cams on the microswitches that ensure perfect operation all the time.

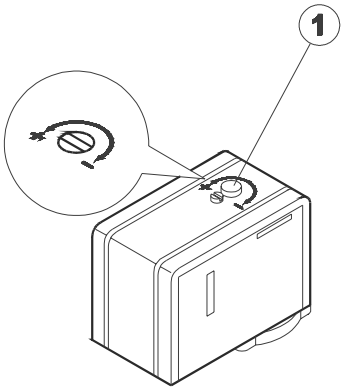
Carry out checks and maintenance periodically to keep the machine 100% efficient.

We recommend **changing the following components after every 100,000 cycles**:

1 Coffee chute
2 Brush
3 O-ring
4 Top filter
5 Gasket
6 Bottom filter
7 Diffuser
8 Connection pipes



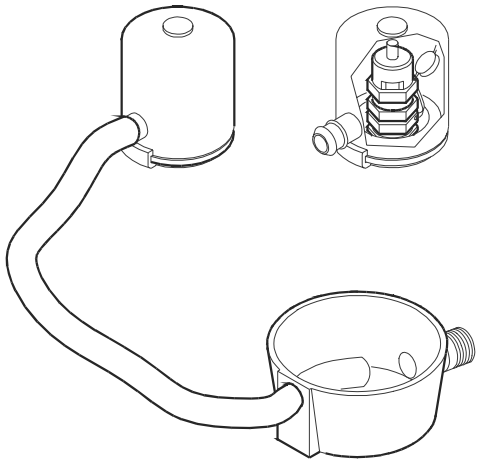
8.6 Checking pressure



This is used to turn the heating elements on or off according to the pressure reached inside the boiler. Regulation pressure can vary from a minumum of 0.5 bar to a maximum of 1.4 bar.

attention

The contacts inside the machine are subject to oxidation. We recommend cleaning them regularly with an antioxidant spray.
*Calibrate the pressure switch while the machine is working, regulating pressure with the relative screw on the component (**1**).*



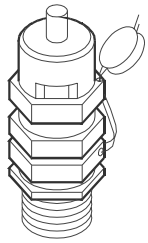
8.7 Anti-flooding device

If any water leaks from the machine, due to a malfunction, etc., thanks to the cover installed on the pressure limiting device, this water can be collected and sent to the drainage tray through the relative pipe.

8.8 Valves unit

Valves are devices the, function of which is to guarantee safety and correct operation of the machine.

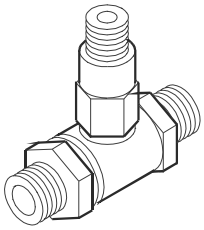
Pressure limiting valve (safety valve)



The pressure limiting valve guarantees that the pressure inside the boiler does not exceed **2 bar**.

If this valve fails, the valve's capacity is such as to be able to discharge all excess pressure from the boiler.

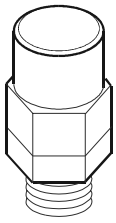
Check valve



It consists of an expansion and a check valve.

- expansion valve: the cold water sent to the pump in the heat exchangers gets hot. This heating causes an increase in the volume of water. To limit pressure rises in the hydraulic circuit, the valve limits the maximum pressure inside the circuit to 12 bar.
- check valve: its job is to avoid water flowing back from the exchangers to the hydraulic circuit.

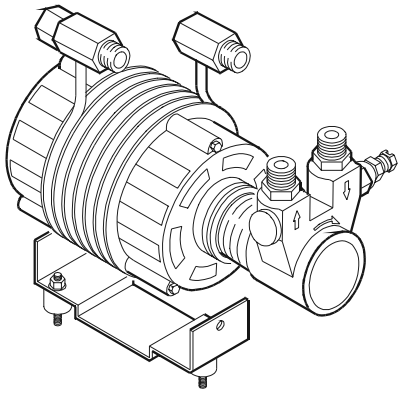
Antidepression valve



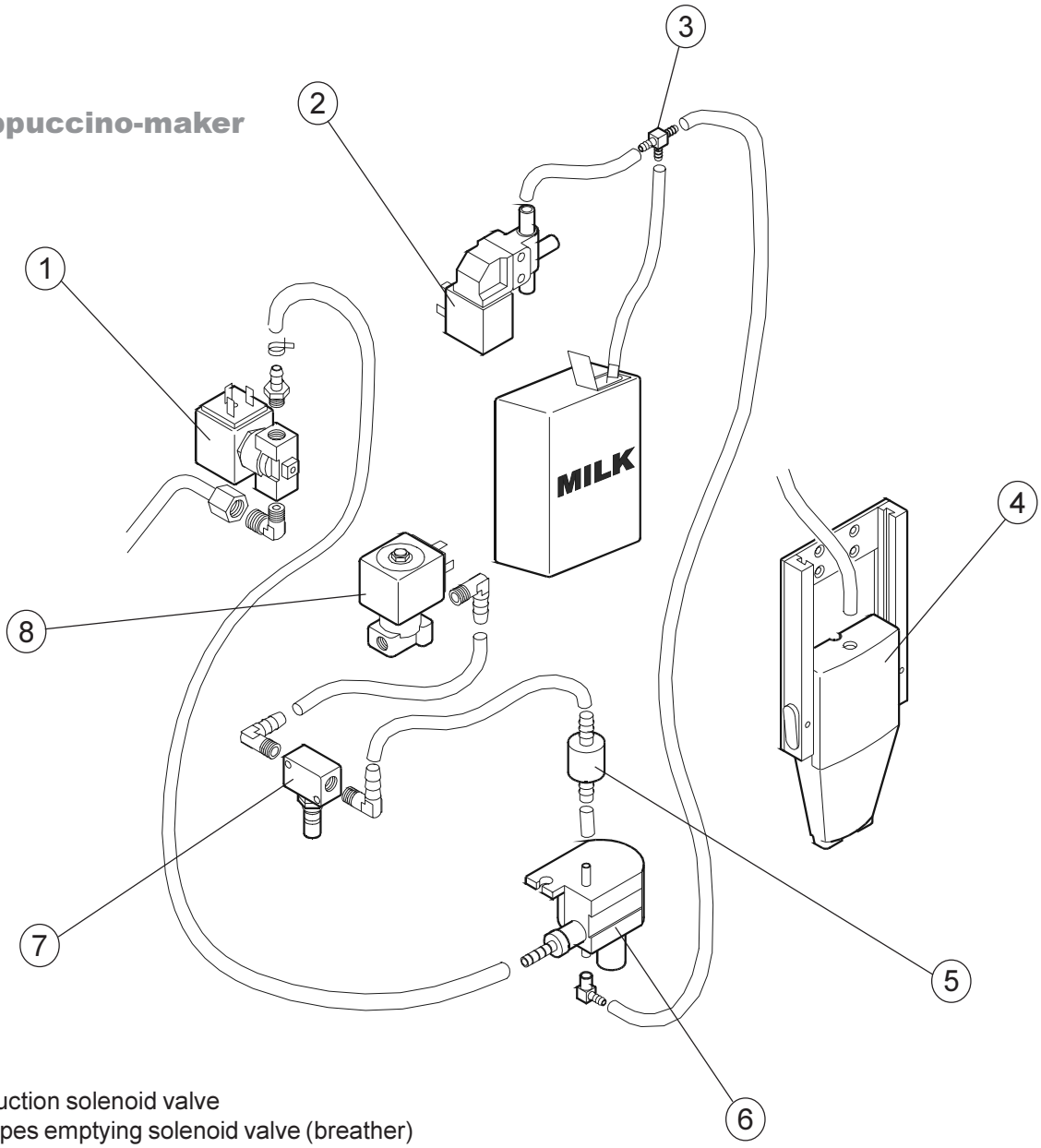
The job of the antidepression valve is to avoid the recall of liquids through the steam spout while they are heating up. It also eliminates the air inside the boiler when the machine is warming up.

8.9 Pump system

This component has the job of feeding the machine, raising water pressure to 8-9 bar for dispensing coffee and filling up the boiler automatically.



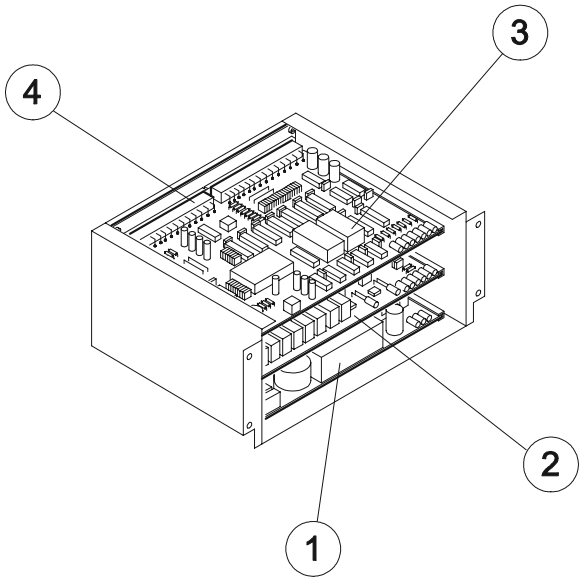
8.10 Cappuccino-maker



1 - Milk suction solenoid valve
2 - Milk pipes emptying solenoid valve (breather)
3 - Distributor
4 - Coffee dispensing spout
5 - Check valve (regulator protection)
6 - Cappuccino-maker
7 - Air regulator (adjusts milk froth)
8 - Milk frothing solenoid valve

9. ELECTRONIC SYSTEM

The machine's electronic system has the following elettronic cards:



1 • **POWER** Hardware card

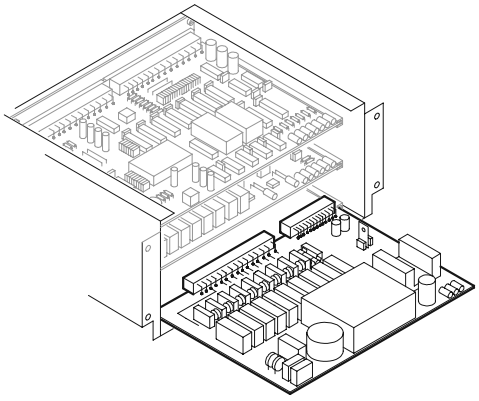
2 • **DRIVER** Hardware card

3 • **CPU** Software logic

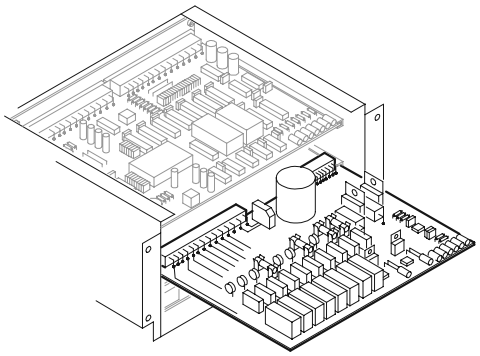
4 • **MOTHER BOARD** Hardware card

In addition, the electronic system consists of:

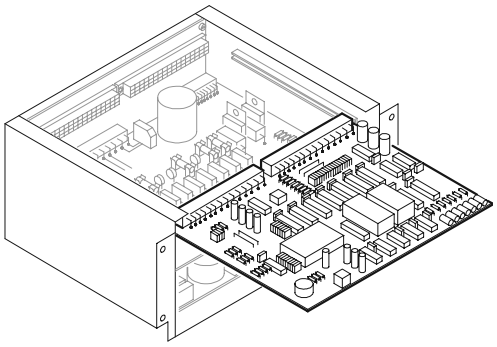
- Push button panel and display
- Actuator relays
- LEDs
- Microswitches
- Level probes



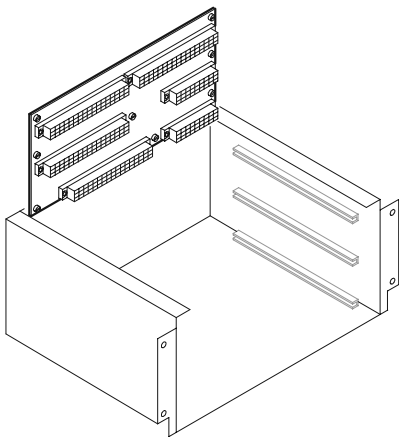
POWER CARD



DRIVER CARD



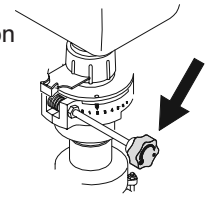
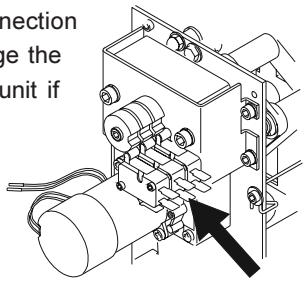
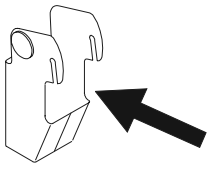
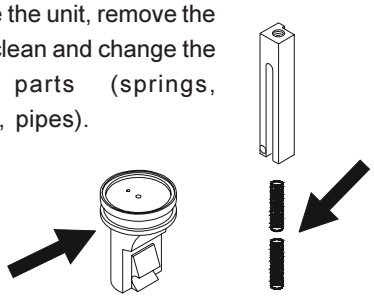
CPU CARD

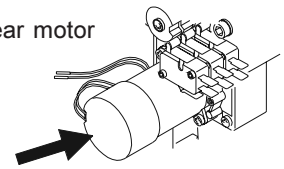
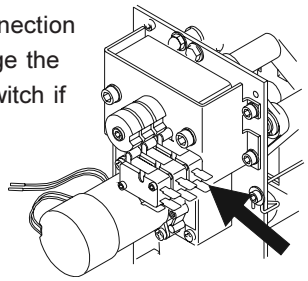
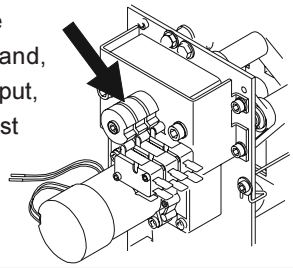
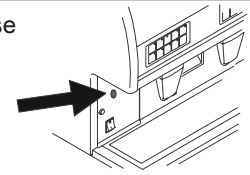
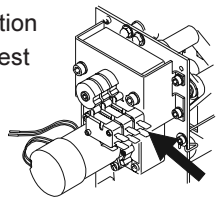
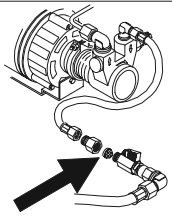
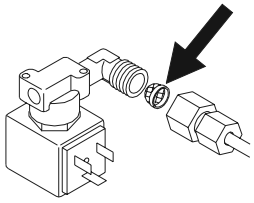


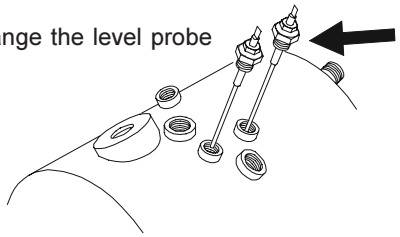
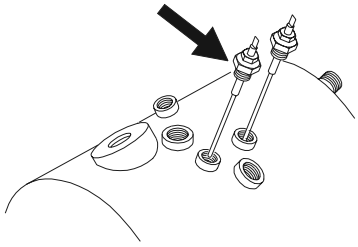
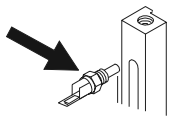
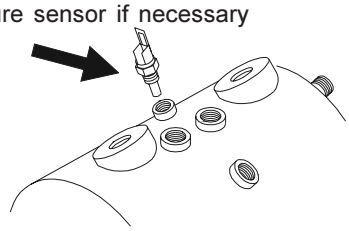
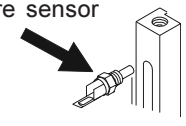
MOTHER BOARD CARD

10. TROUBLESHOOTING

10.1 Indications on the display

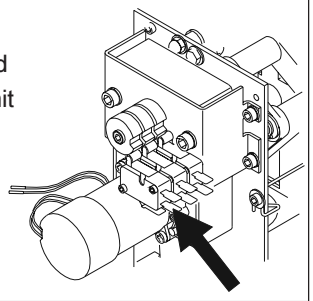
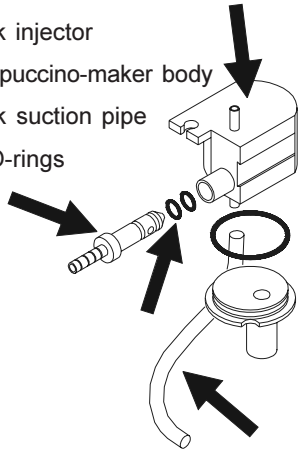
display	cause	remedy
GRIND GR I or II NOT VALID		- Press the key 
	1. Grinding too coarse	**1.** Use the relative knob on the grinder-doser to make grinding finer 
	2. Grinding time too long	**2.** Enter grinding programming and reduce grinding time
	3. Microswitch unit faulty or connection interrupted	**3.** Restore connection and/or change the microswitch unit if necessary 
NO COFFEE GR I or II		**0.** Press the key 
	1. There is no coffee in the grinder-doser hopper	**1.** Put coffee beans in the grinder-doser hopper
	2. Valve on the grinder-doser is closed	**2.** Open the valve on the grinder-doser hopper
	3. The coffee chute is clogged	**3.** Remove the coffee chute and remove fat residuals with hot water or change the coffee chute 
	4. The piston is locked in the high position either because there is a lot of dirt or because the return spring is faulty	**4.** Remove the unit, remove the piston, clean and change the faulty parts (springs, gaskets, pipes). 

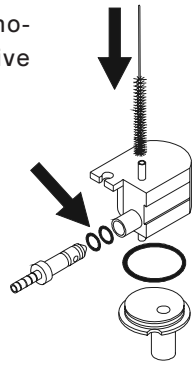
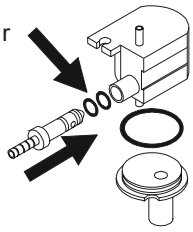
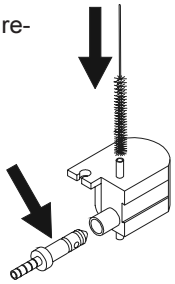
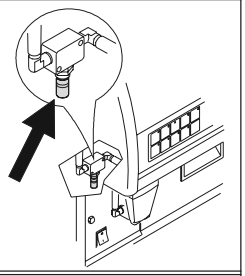
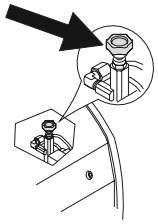
display	cause	remedy
PISTON GR I or II JAMMED	**1.** The gear motor has broken	**1.** Change the gear motor 
	2. The rest microswitch is faulty or the connection is interrupted	**2.** Restore connection and/or change the rest microswitch if necessary 
	3. Position of the rest microswitch cam incorrect	**3.** Enter machine programming and, with the test input, position the rest cam properly 
COMPRESSION INSUFFICIENT		- Press the key 
		- Switch the machine off and then on
	1. The motor transformer protection fuse has blown	**1.** Change the fuse 
	2. The rest microswitch is either faulty or the connection is interrupted	**2.** Restore the connection and/or change the rest microswitch 
CHECK BOILER WATER LEVEL	**1.** No water in the mains	**1.** Check whether or not there is water in the mains
	2. Softener cock closed	**2.** Open all the cocks upstream from the machine
VOL. DOSER GR I or II NOT COUNTING	**3.** Pump filter clogged	**3.** Change the pump filter 
	4. Loading solenoid valve filter clogged	**4.** Change the solenoid valve filter 

display	cause	remedy
CHECK BOILER WATER LEVEL VOL. DOSER GR I *or* II NOT COUNTING	**5.** Loading solenoid valve faulty or the connection is interrupted	**5.** Restore connection and/or change the loading solenoid valve if necessary
		6. Press the key 
MINIMUM LEVEL IN BOILER	**1.** Boiler level probe short circuited to earth	**1.** Change the level probe 
	2. Boiler level safety probe disconnected	**2.** Restore connection and/or change the safety probe if necessary 
OVERTEMPERATURE	**1.** Dispensing unit temperature is too high	**1.** Change the unit temperature sensor (PTC) 
BOILER SENSOR NOT WORKING	**1.** Boiler temperature sensor (PTC) is either faulty or the connection is interrupted	**1.** Restore connection and/or change the temperature sensor if necessary 
		2. Press the key 
SENSOR GR I *or* II	**1.** Unit temperature sensor (PTC) is either faulty or the connection is interrupted	**1.** Restore connection and/or change the temperature sensor if necessary 
	2. Wiring interrupted	**2.** Restore connection
		3. Press the key 

10.2 Failures and functional problems

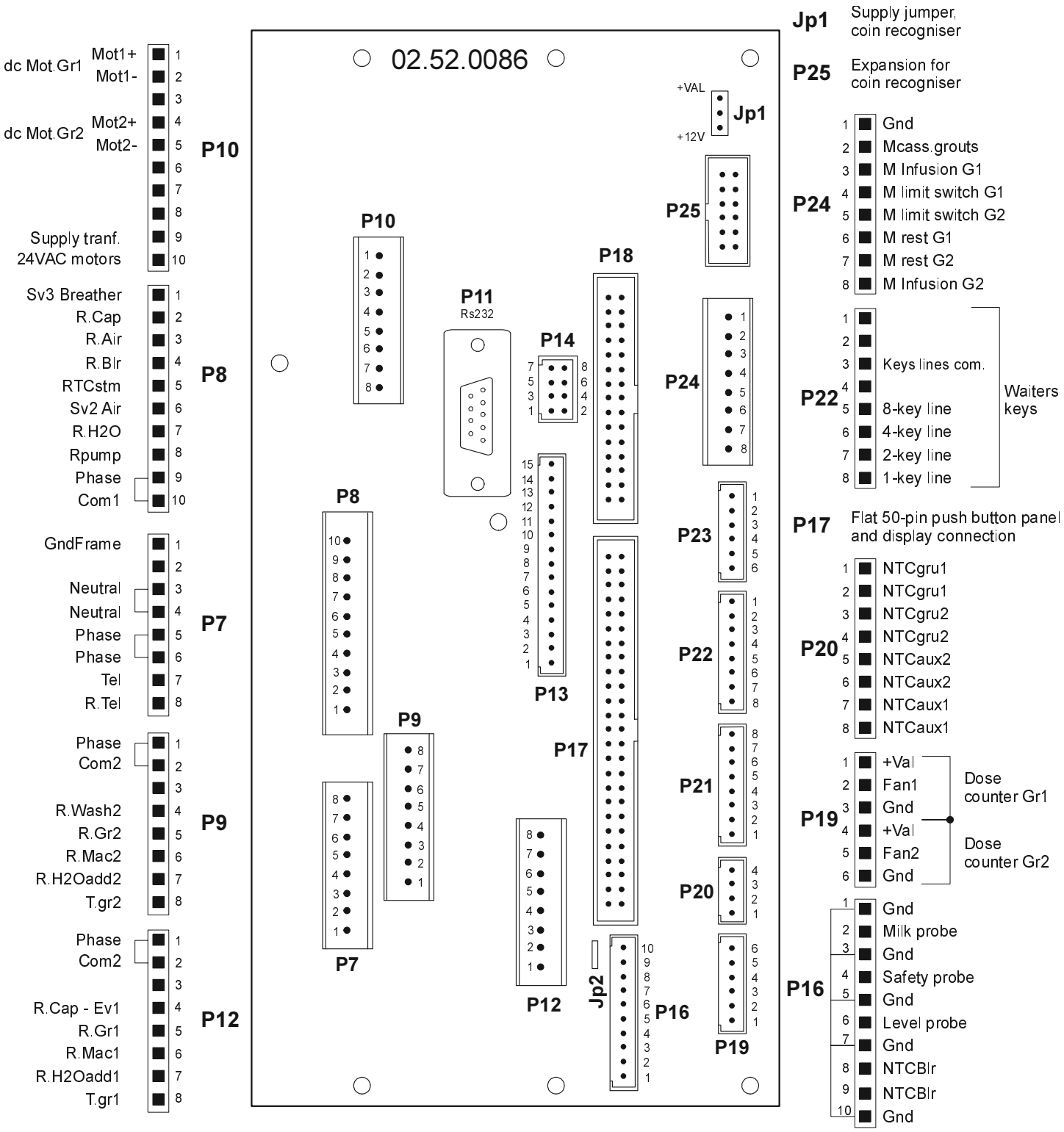
problem	cause	remedy
THE MACHINE DOES NOT TURN ON	**1.** Machine switch on **0** **2.** Mains switch on **OFF** **3.** Mains connection does not conform	**1.** Start the machine as described in the user manual **2.** Check the mains switch **3.** Check connection to the electricity mains
NO STEAM IS COMING FROM THE STEAM SPOUT	**1.** Faulty heating element **2.** Pressure switch contacts rusted **3.** Heating element protection triggered **3.** The spray is clogged	**1.** Change the heating element **2.** Clean the contacts of the pressure switch or change it **3.** Rearm the heating element protection **4.** Clean the spray's spout
A MIXTURE OF STEAM AND WATER IS COMING FROM THE STEAM SPOUT	**1.** Boiler water level is too high because the boiler level probe is wrongly positioned or there is limescale on it	**1.** Check the position of the level probe and change it if necessary
WATER IS LEAKING FROM THE MACHINE	**1.** The drain is clogged **2.** Drainpipe broken or has come away **3.** Water leaking from fittings or from the pipes of the internal hydraulic circuit	**1.** Check the drainage system **2.** Check the drainpipe **3.** Restore watertightness by changing the pipe, gasket or fitting
WATER IS LEAKING FROM THE TOP OF THE DISPENSING UNIT	**1.** Top gaskets deteriorated	**1.** Change the top gaskets
WATER IS LEAKING FROM THE BOTTOM OF THE DISPENSING UNIT	**1.** Bottom gaskets deteriorated **2.** Fitting and/or pipe deteriorated	**1.** Change the bottom gaskets **2.** Change the fitting and/or pipe
WATER IS LEAKING FROM THE INTERNAL PUMP	**1.** No mechanical seal of the shaft or O-ring **2.** Fittings have loosened **3.** The hexagon nut of the limiter valve or of the filter has come loose **4.** The gasket or the O-ring of the limiting valve or of the filter has deteriorated	**1.** Check the pump **2.** Tighten the fittings **3.** Tighten the fittings **4.** Change the gasket taking care not to alter limiting valve calibration
THE PUMP IS MAKING A LOT OF NOISE	**1.** Pump and motor not aligned **2.** The gasket or the O-ring of the limiter valve or of the filter has deteriorated **3.** The joint or the coupling screw or the V clamp has come loose **4.** Obstruction, even partial, of the pump inlet **5.** The hexagon nut of either the limiting valve or of the filter has come loose	**1.** Realign pump and motor **2.** Change the pump **3.** Align and tighten **4.** Clean or change the inlet filter **5.** Tighten the hexagon nut

problem	cause	remedy
THE PUMP IS WORKING BELOW ITS NOMINAL CAPACITY	**1.** Pump inlet is clogged, even only partially **2.** The pump is turning in the wrong direction **3.** Limiter valve calibration does not conform **4.** Pump damaged inside due to penetration of abrasive materials **5.** Motor revs are low	**1.** Clean or change the filter **2.** Check the motor **3.** Recalibrate the limiter valve **4.** Change the pump **5.** Check supply voltage or change the motor
THE MOTOR PUMP STOPS SUDDENLY OR THE THERMAL PROTECTION TRIGGERS DUE TO AN OVERLOAD	**1.** The pump jams due to limescale and mineral deposits inside **2.** Pump and motor are not aligned **3.** The motor is faulty **4.** Wrong motor supply voltage	**1.** Change the pump **2.** Align pump and motor **3.** Change the motor **4.** Check the motor's correct supply voltage
THE GAUGE SHOWS A NON-CONFORMING PRESSURE	**1.** The gauge is faulty **2.** The pressure switch is incorrectly calibrated **3.** The motor pump is incorrectly calibrated	**1.** Change the gauge **2.** Recalibrate the pressure switch **3.** Recalibrate the motor pump
THE DISPLAY FAILS TO SIGNAL THERE IS NO COFFEE	**1.** The limit microswitch is faulty or the connection is interrupted	**1.** Restore connection and change the limit microswitch if necessary 
THE CAPPUCCINO-MAKER IS NOT TAKING UP MILK	**1.** No steam (pressure **O**) **2.** Milk injector clogged **3.** Cappuccino-make body clogged **4.** Milk suction pipe clogged **5.** Injector O-rings deteriorated	**1.** Wait for the machine to get back up to pressure **2.** Clean the milk injector **3.** Clean the cappuccino-maker body **4.** Clean the milk suction pipe **5.** Change the O-rings 

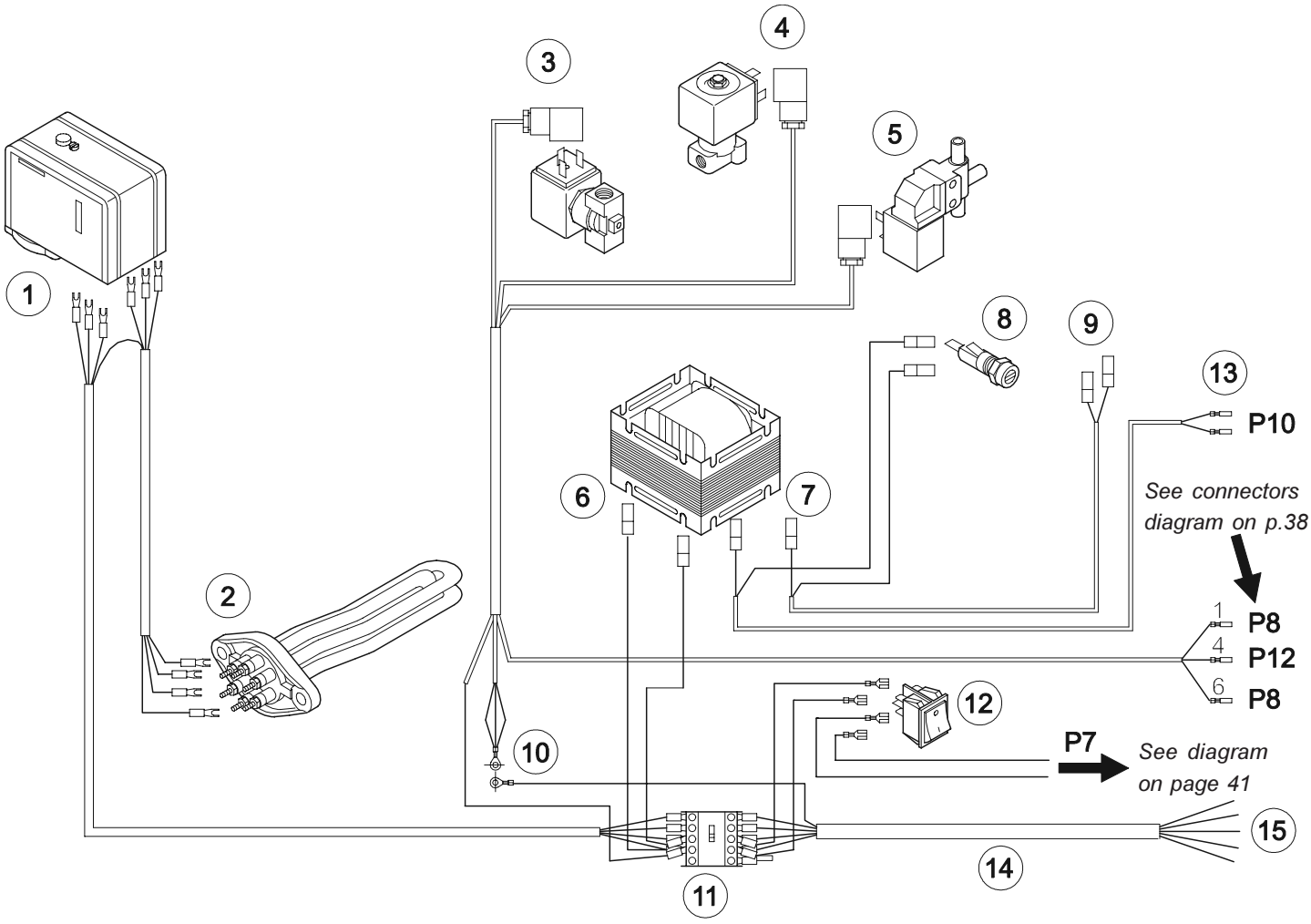
problem	cause	remedy
MILK IS BEING DISPENSED IN STOPS AND STARTS	**1.** Cappuccino-maker clogged **2.** The cappuccino-maker's O-rings have deteriorated	**1.** Clean the cappuccino-maker with the relative brush **2.** Change the O-rings 
THE MILK IS TOO COLD	**1.** The injector is not properly in place **2.** The O-rings have deteriorated	**1.** Position the injector correctly **2.** Change the seals 
THE MILK IS TOO HOT	**1.** The cappuccino-maker's through-hole is clogged **2.** The diameter of the cappuccino injector hole is too big	**1.** Clean the hole with the relative brush **2.** Change the injector 
THERE ARE BUBBLES ON THE MILK FROTH	**1.** The air regulator is open too far **2.** The air suction pipe is disconnected	**1.** Calibrate the air regulator correctly **2.** Restore connection via the pipe 
WATER FOR TEA IS EITHER TOO COLD OR TOO HOT	**1.** Tea water temperature is not set correctly	**1.** Set tea water temperature appropriately with the relative knob. 

11. WIRING DIAGRAMS

11.1 Mother Board connectors diagram

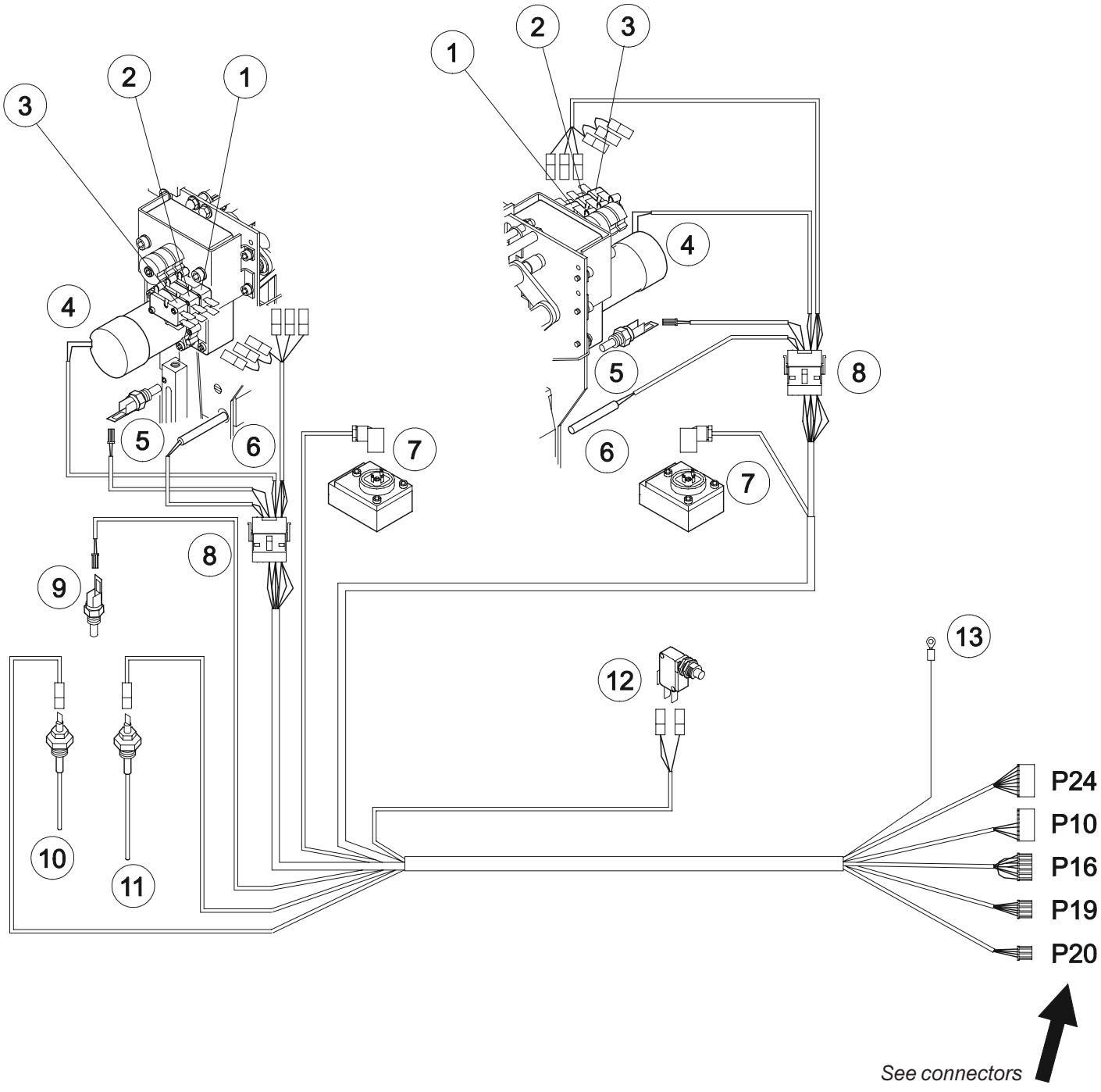


11.2 High voltage electrical circuit



1. Pressure switch
2. Boiler heating element
3. Steam solenoid valve for cap. suction (EV1)
4. Air solenoid valve (EV2)
5. Decompression solenoid valve (breather EV3)
6. Transformer on high voltage side
7. Transformer on low voltage side
8. Fuse
9. Connectors for unit cover safety microswitches
10. Frame earthing
11. Contactor
12. Main switch for starting the machine
13. 24Vac motor supply
14. Power cable
15. Connection to the electricity mains

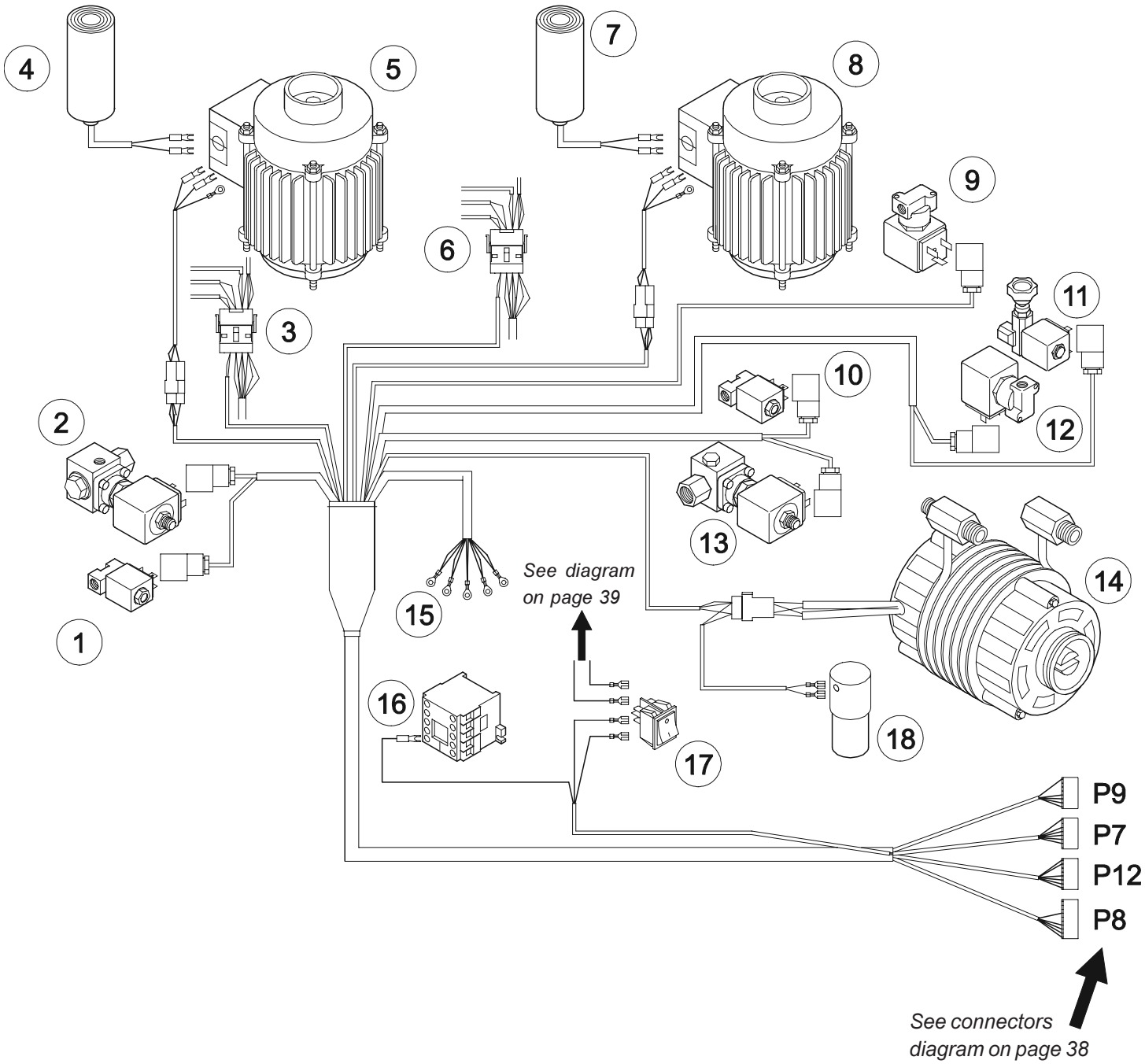
11.3 Low voltage electrical circuit



See connectors diagram on page 38

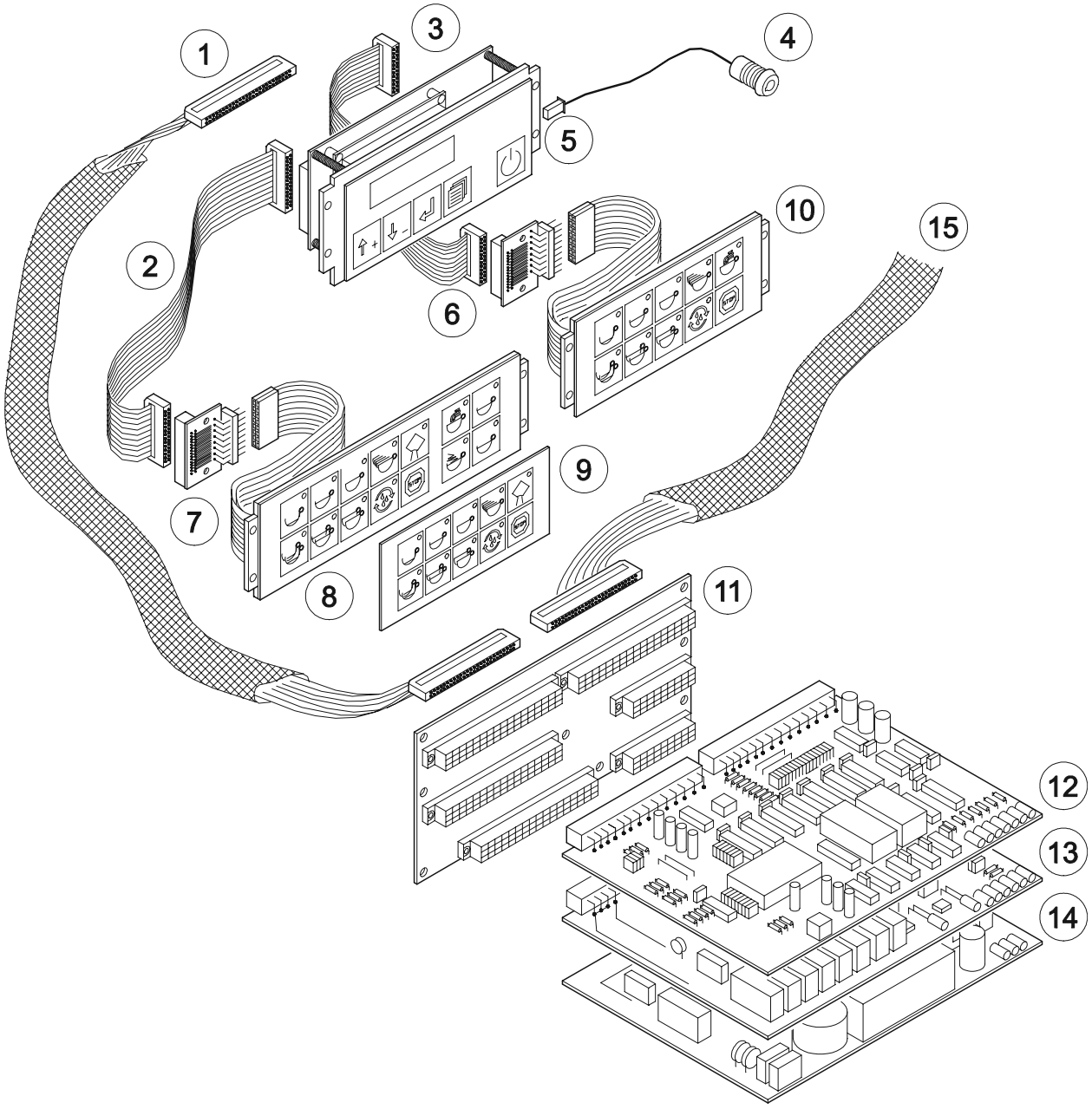
1. Rest microswitch
2. Infusion microswitch
3. Limit microswitch
4. Gear motor
5. Unit sensor
6. Unit heating element
7. Volumetric flowmeter
8. Unit connector
9. Boiler sensor
10. Normal level probe
11. Safety level probe (minimum)
12. Grouts drawer microswitch
13. Frame earthing

11.4 Electrical circuit of motors and solenoid valves



1. Added water solenoid valve left unit
2. Solenoild valve left unit
3. Connector left unit
4. Left grinder motor capacitor
5. Left grinder motor
6. Connector right unit
7. Right grinder motor capacitor
8. Right grinder motor
9. Boiler loading solenoid valve
10. Added water solenoid valve right unit
11. Tea mixing solenoid valve
12. Tea solenoid valve
13. Solenoid valve right unit
14. Pump motor
15. Frame earthing
16. Line contactor
17. Main switch
18. Pump motor capacitor

11.5 Electronic boards electrical circuit



1. Display connecting cable
2. Right push button panel connecting cable
3. Left push button panel connecting cable
4. Programming keys unit
5. Push button panel display
6. P.C. for right push button panel
7. P.C. for cappuccino push button panel
8. Right push button panel + cappuccino
9. Right push button panel
10. Left push button panel
11. Mother Board card
12. CPU card
13. DRIVER card
14. Power supply card
15. Connection to the right push button panel

11.6 LED electronic diagram

COLOUR LEDS

R	Red
V	Green
G	Yellow

LED COMANDS

*	**RESET**	Machine on
	MOTG1-	Motor unit 1-
	MOTG1+	Motor unit 1+
	MOTG2-	Motor unit 2-
	MOTG2+	Motor unit 2+
	VENT1	Volumetric control gruppo 1
	VENT2	Volumetric control gruppo 2

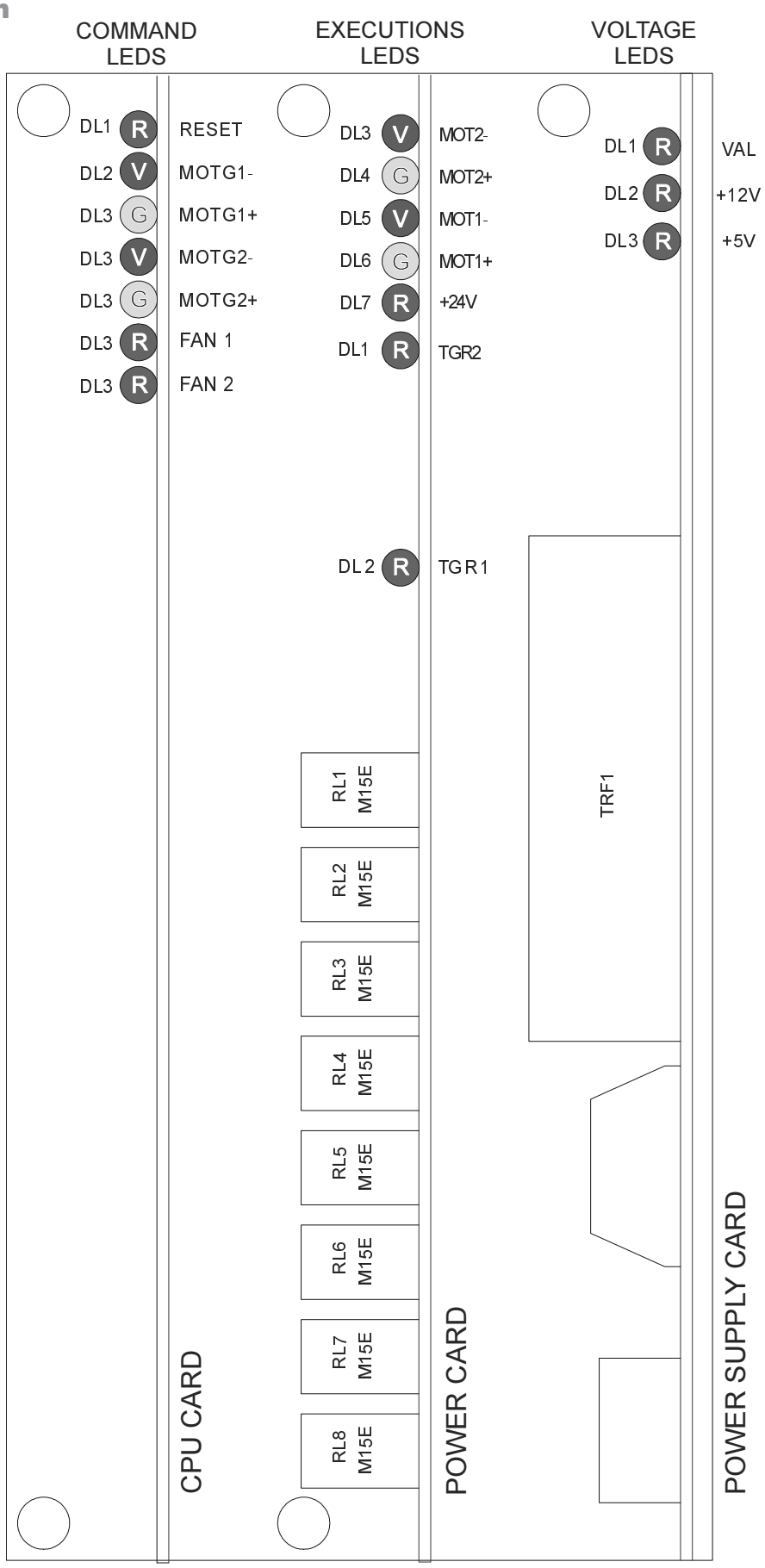
EXECUTION LEDS

	MOT1-	Motor unit 1-
	MOT1+	Motor unit 1+
	MOT2-	Motor unit 2-
	MOT2+	Motor unit 2+
*	**+24V**	24V voltage
	TGR1	Heating element unit 1
	TGR2	Heating element unit 2

VOLTAGE LEDS

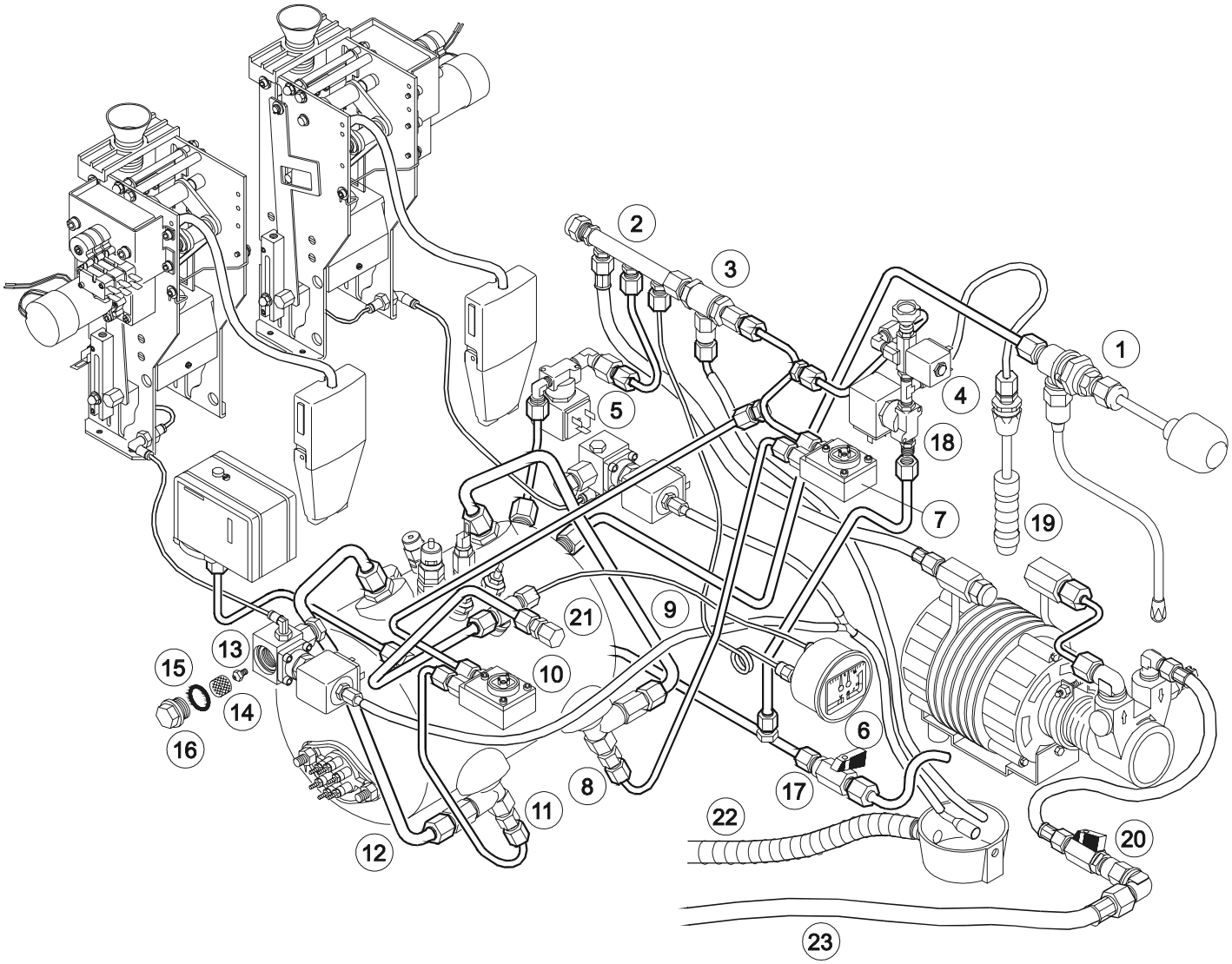
*	**VAL**	Supply voltage
*	**+12V**	12V voltage
*	**+5V**	5V voltage

* Under normal working conditions, the LEDs with asterisks must always be on



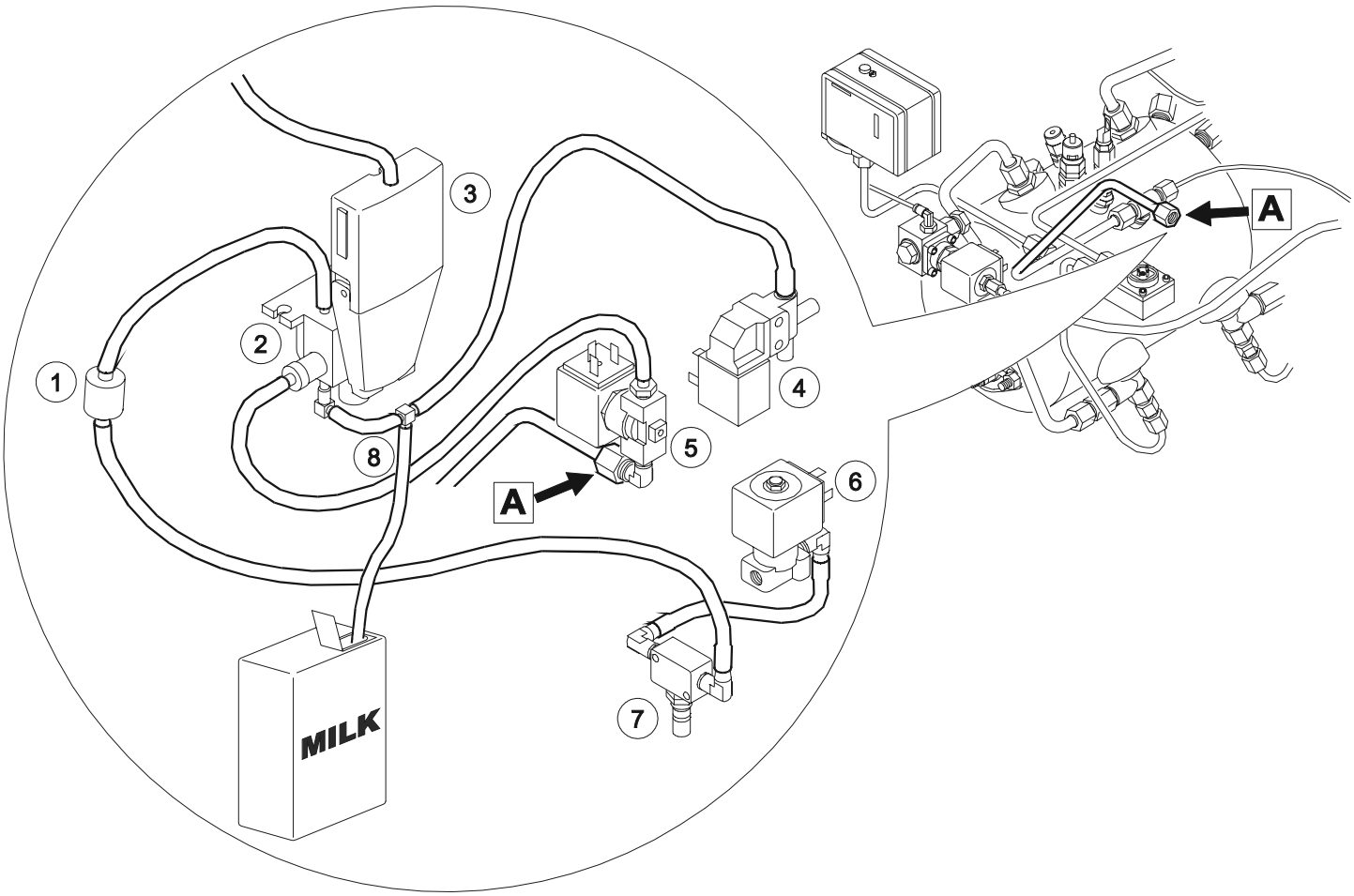
12. HYDRAULIC DIAGRAMS

12.1 General hydraulic diagram



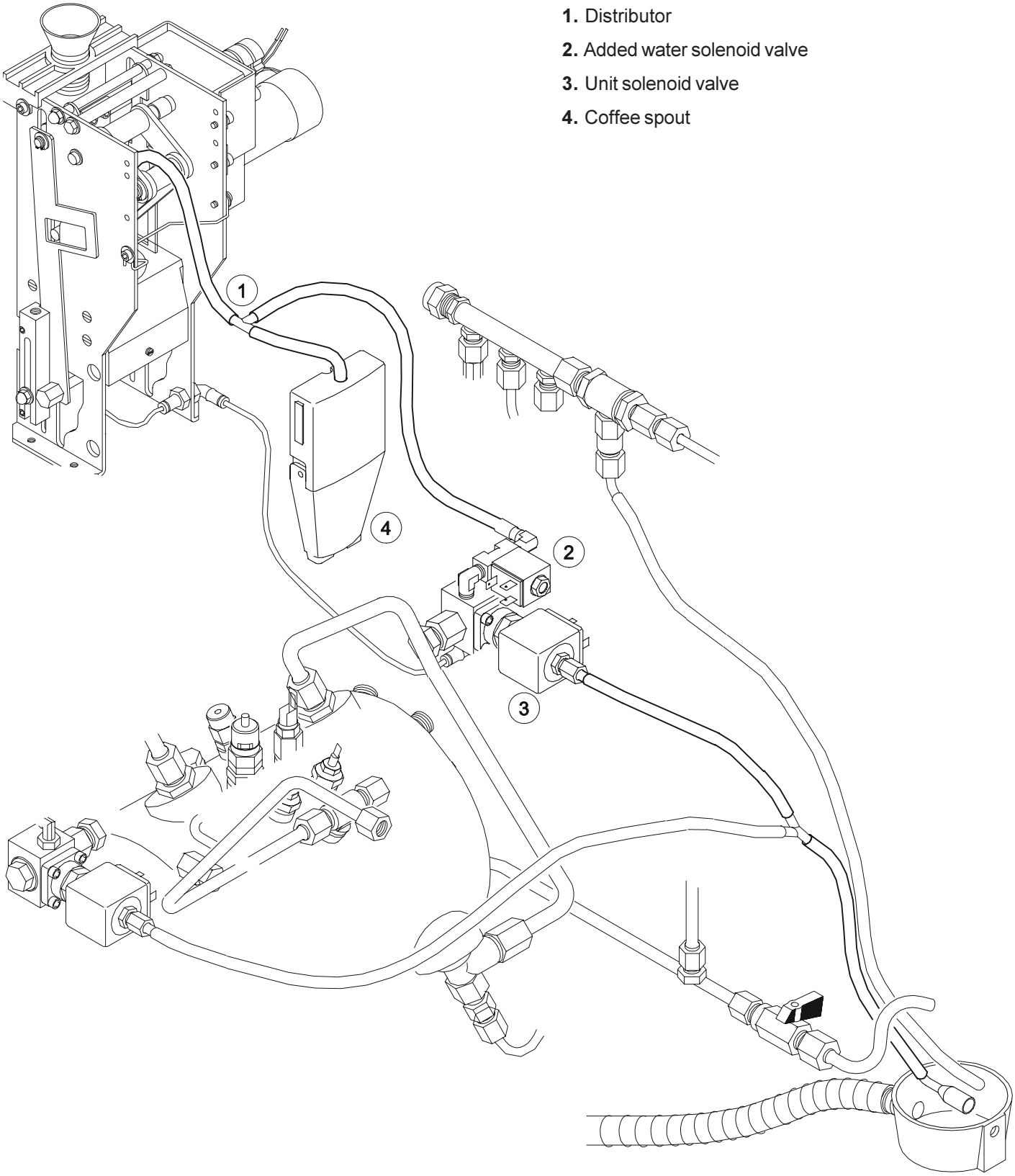
1. Steam cock
2. Distributor
3. SCNR valve
4. Tea mixing solenoid valve
5. Boiler loading solenoid valve
6. Gauge
7. Right volumetric flowmeter
8. Injection tube right unit
9. Recirculation tube right unit
10. Left volumetric flowmeter
11. Injection tube left unit
12. Recirculation tube left unit
13. Gigleur Ø 0.8 unit
14. Filter
15. O-ring unit cap
16. Unit cap
17. Boiler drain cock
18. Tea solenoid valve
19. Water outlet
20. Water inlet cock
21. Milk suction tube solenoid valve
22. Drainpipe
23. Water inlet pipe

12.2 Cappuccino-maker hydraulic diagram



1. Check valve
2. Cappuccino-maker
3. Coffee spout
4. Breather solenoid valve
5. Suction solenoid valve for cappuccino-maker
6. Air solenoid valve
7. Air regulator
8. Distributor

12.3 Added water hydraulic diagram



1. Distributor

2. Added water solenoid valve

3. Unit solenoid valve

4. Coffee spout

C.M.A. S.p.a.
Via dei Colli, 66 - 31058 SUSEGANA (TV) - ITALY
Tel. 0438/6615 - Fax 0438/60657
INTERNET: www.cmaspa.com - E-MAIL: cma@cmaspa.com

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