



Built-in automatic coffee machine

EKV 6200.0E

EKV 6500.0E

Service Manual: H6-52-01

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Contents

1. Safety	4
2. Technical data (date: 16.10.2009).....	5
2.1 General.....	5
3. Installation.....	6
3.1 Installation instructions	6
3.2 EKV 6200.0E assembly dimensions	6
3.3 Installation	7
4. Your appliance at a glance	9
5. Button functions.....	12
6. Test programmes	13
6.1 EKV 6200.0E	13
6.2 EKV 6500.0E.....	16
7. Water flow diagram	18
8. Accessing the individual components	19
8.1 Removing and installing the brewing unit.....	19
8.2 Removing the shelves	20
8.3 Removing the back appliance casing.....	20
8.4 Removing the front cover	21
8.5 Accessing the reed switch (water tank).....	21
8.6 Accessing the flow metre	22
8.7 Removing the pump	22
8.8 Removing the top cover	23
8.9 Removing the continuous flow heater (water)	23
8.10 Removing the continuous flow heater (coffee water)	24
8.11 Removing the brewing group motor	25
8.12 Removing the electronic unit.....	26
8.13 Accessing the micro switch in the door	26
8.14 Accessing the micro switch in the drip tray	27
8.15 Accessing the top micro switch in the brewing unit motor unit	27
8.16 Accessing the lower micro switch in the brewing unit motor unit	28
8.17 Accessing the sensor electronics in the brewing unit motor.....	28
8.18 Accessing the coffee holder	29
8.19 Working on the front panel and the electric controls	29
9. The grinder - setting.....	31
10. Cleaning and care.....	33
11. Finding faults	34
11.1 Customer complaints.....	34
11.2 Technical faults	37
12. Circuit diagram	42

1. Safety



Danger!

Repairs may only be carried out by a qualified electrician!

Improper repairs can be extremely dangerous for the user.

It is essential that you observe the following instructions in order to prevent electric shocks:

- The casing and the frame may be live in the event of faults! Prior to repairs, disconnect the appliance from the mains!
- Touching live components inside the appliance may cause dangerous currents to flow through your body!
- Disconnect the appliance from the mains prior to carrying out any repair work!
- When inspecting live parts, a residual current circuit breaker must always be used!
- Always ensure that an earthed conductor is properly connected. The ground wire resistance must not exceed that specified in the standard! It is vital for ensuring the safety of persons and the functioning of the appliance.
- On completion of repairs, an inspection must be carried out in accordance with VDE 0701 [Association of German Electrical Engineers] or the corresponding regulations for your country! On completion of repairs, a function and impermeability inspection must be carried out.
- Do not touch any of the components in the appliance. The modules are also live!
- Observe instructions on electrostatic hazards!



Attention!

Please observe the following instructions:

- When taking measurements according to VDE 0701 above the connector plug, the universal switch-off device (relay, circuit breaker) of the boiler means that it must be checked for insulation faults by measuring it direct, or the residual current of the appliance must be measured.
- Pay attention to sharp edges in the stainless steel assemblies when replacing components.
- Disconnect appliances that are to be repaired from the power supply. It is absolutely essential to use a residual current circuit breaker when tests need to be conducted on live parts.



Sharp edges: Use protective gloves.



Components may be electrostatic!

Observe handling regulations!

2. Technical data (date: 16.10.2009)

2.1 General

This service manual serves to give specific information on the functioning of the appliances indicated in the title to customer service technicians who already have the required technical knowledge to be able to repair coffee machines.

Dimensions

Height	45.5cm
Width	59.5cm
Depth	42.0cm
Net weight	23kg
Gross weight	27.6kg
Niche dimension (WxHxD)	560 x 450 x 550mm
Connected load	1.35kW
Voltage	220 - 240V / 50-60Hz
Power consumption	1350W
Connection cable	1.50m
Ready to plug in	Yes

Standard accessories

Cappuccino pot

Alarm signals

Optical

Capacitor	16µF 230V/50Hz
Transformer	230-18V 150VA 50/60Hz Protected with a safety fuse at 150°C
Transformer	TA50 230V
LED (lamps)	1W
Light switch	2-pole
Resistance	D10x55 18W 230V

Micro switches	
Door	Three pole, changeover contact
Coffee grounds box	Three pole, changeover contact
Drip tray installed:	Closed
Drip tray removed:	Open

Micro reed water level sensor

With water	Closed
No water	Open

Coffee component

Temperature probe	98°C
Thermal fuse	192°C
Heating element	230V, 50Hz, 84Ω
NTC temperature sensor	98kΩ, 26°C 1.2kΩ, 90°C
Solenoid valve (coil)	230V, 50Hz 2400Ω ±7%
Over temperature protection	Double-pole breaker (safety fuse)

Heating element (electrical resistance)	600W + 600W
Pump type	W UCLA EP5/48

Steam component

Temperature probe	145°C
Thermal fuse	318°C
Heating element (electrical resistance)	1000W

Pump component	
Pump	230V, 59Hz

Grinder component	
Grinder	230V, 50Hz, 73Ω

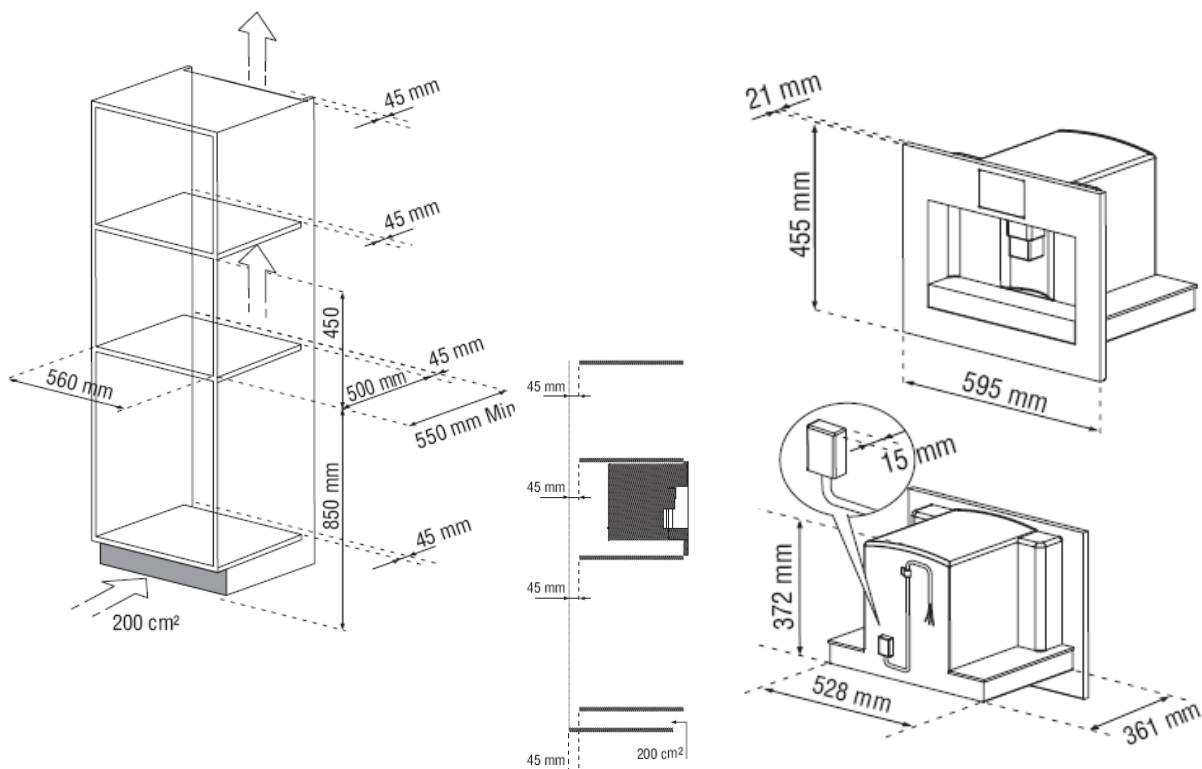
Brewing unit motor	
Limit switch top/bottom	Closed
Motor	260V~, 243Ω

3. Installation

3.1 Installation instructions

- Statutory regulations and the connection specifications issued by the local power supply company must be strictly observed.
- Before connecting the appliance to the mains power supply make sure that the power supply complies with its intended voltage.
- The appliance must be disconnected from the mains for connection and repairs. Disconnect the fuse.
- Ensure full protection against accidental contact when installing the appliance.
- Only connect the appliance to a wall socket that has been properly installed. The mains cable may only be replaced by a qualified electrician who observes the relevant regulations.
- Safety regulations require that a universal isolator with a contact opening of at least 3 mm be used for installation.
- **The built-in cupboard must be fastened firmly to the floor or to the walls as it is heavy and this could make it fall over easily.**
- The automatic coffee machine must be installed a safe distance from other heat sources such as home appliances in order to prevent an excessive rise in temperature.

3.2 EKV 6200.0E assembly dimensions

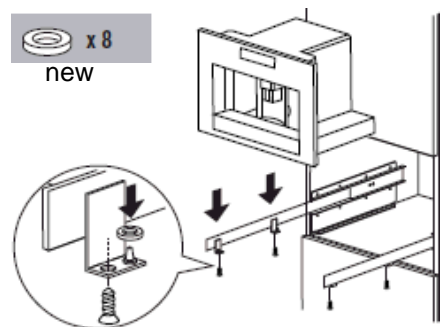
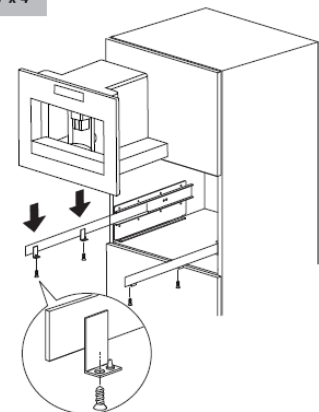
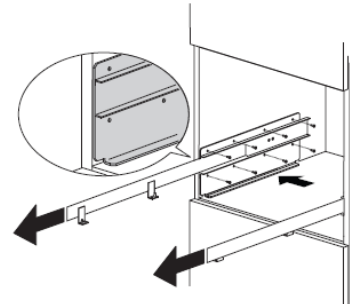


3.3 Installation



Please note:
From June 2013:
Changing of the usual fixing screws equipment into torx and added 8 spacers

1. Remove the coffee machine from the packaging and check to ensure that it is not damaged; if it is, do not install it but contact the dealer.
2. Position the rails on the side of the unit as shown in the diagram.
3. Fasten the rails with the corresponding screws and then pull them out completely.
If the coffee machine is to be installed above a "warming drawer" (max. 500W), please position the screws according to the top of the drawer. In this case there is no shelf.
4. Place the appliance on the rails, making sure that the pins are correctly positioned in their holders.

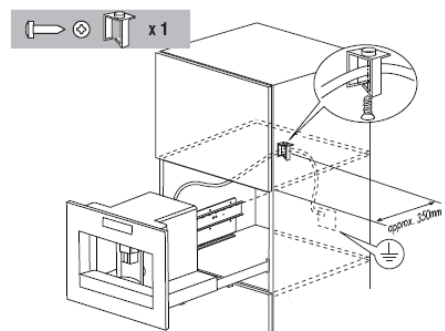


5. Fasten the connection cable with the corresponding clip.

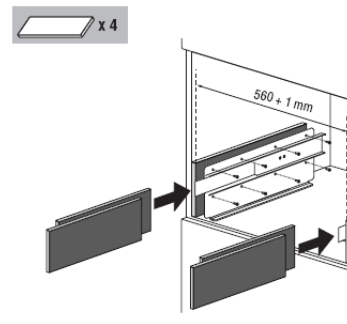
The connection cable must be long enough to be able to pull the appliance out easily to fill up the coffee bean holder. The appliance must be properly earthed.

The electrical connection is to be carried out by a professional electrician on observation of the instructions supplied by the manufacturer and in accordance with valid local regulations.

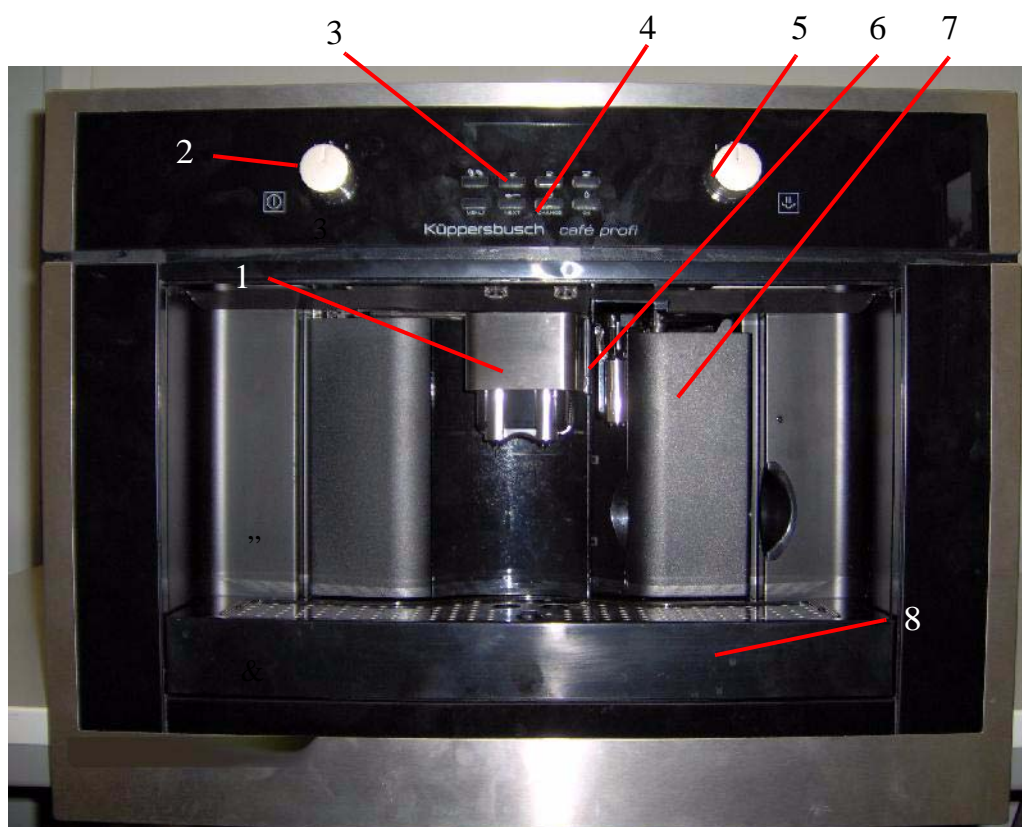
The socket must be easily accessible.



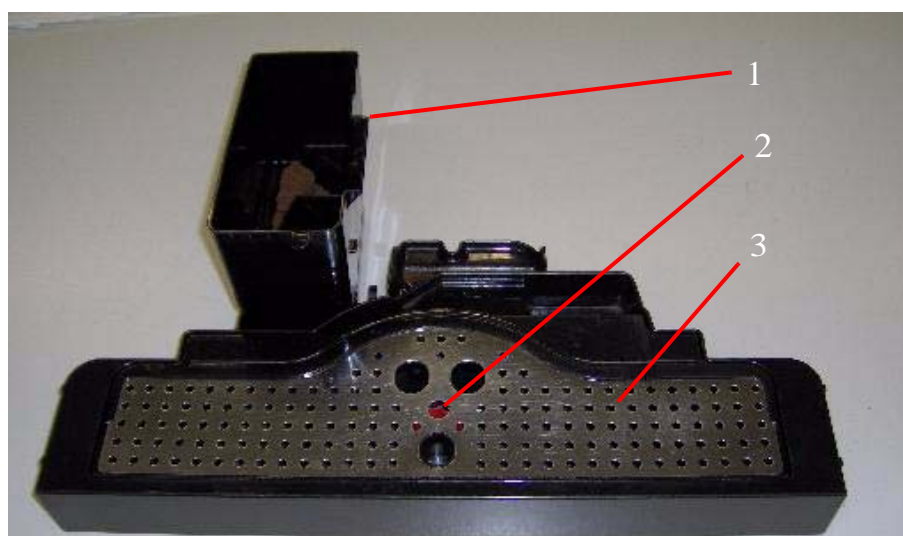
6. When adjusting the alignment of the appliance, position the spacers supplied under the support or on the side of it.



4. Your appliance at a glance



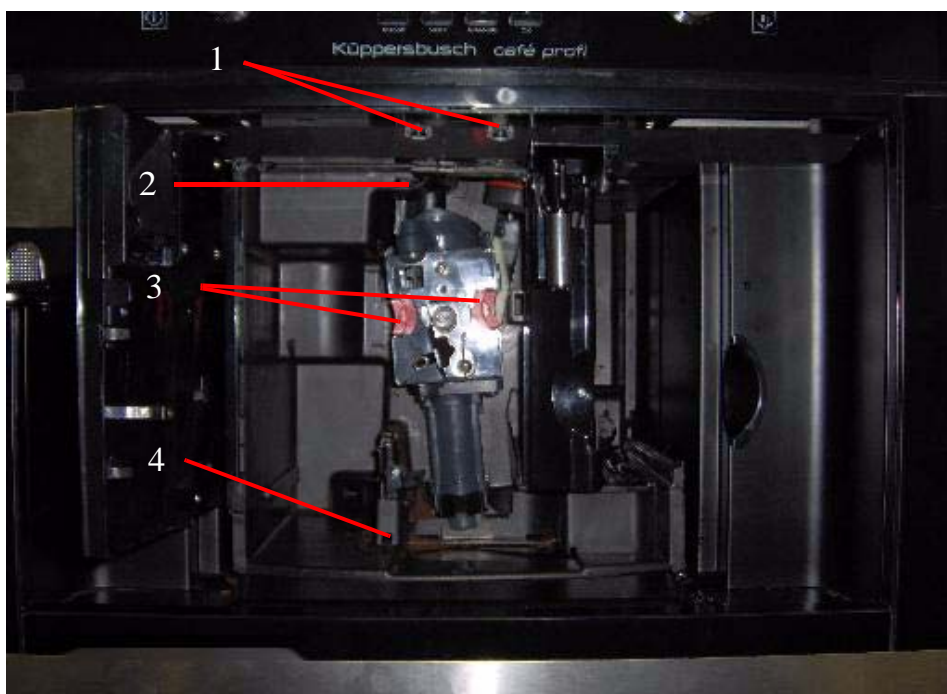
- | | | | |
|---|--------------------------------|---|--------------------------|
| 1 | Coffee pourer | 2 | ON/OFF switch |
| 3 | Plain text display | 4 | Input keys |
| 5 | Selector switch for milk froth | 6 | Hot water discharge pipe |
| 7 | Fresh water tank | 8 | Drip tray |



- | | | | |
|---|--------------------|---|-------------------|
| 1 | Coffee grounds box | 2 | Drip tray display |
| 3 | Drip tray grid | | |



- 1 Milk froth dispenser nozzle
- 2 Cleaning button
- 3 Milk container



- | | |
|---------------------|-----------------------------------|
| 1 Lamps | 2 Door micro switch |
| 3 Brewing unit lock | 4 Coffee grounds box micro switch |

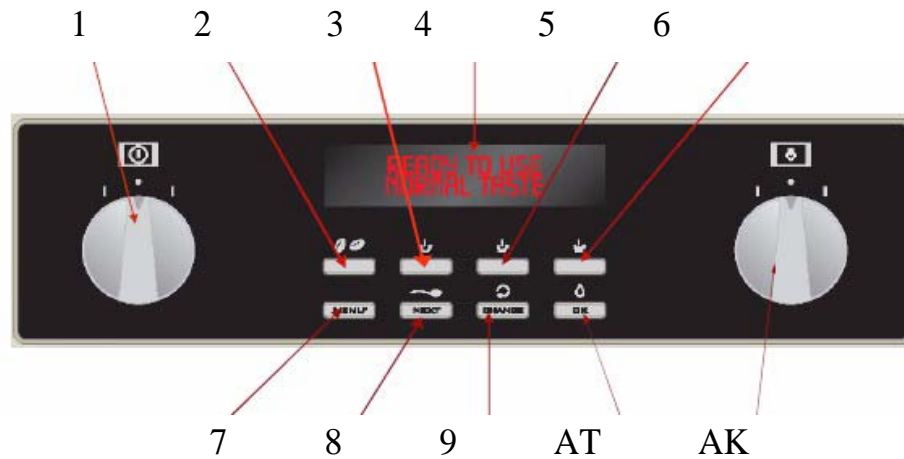
Features

- Programming for 3 different cup sizes
- Pourer for 1 or 2 cups
- Real cappuccino function (removable milk container)
- Option of using coffee beans or ground coffee
- Height-adjustable coffee pourer
- Lamps
- Brewing pressure of approx. 15 bars
- Separate boilers for coffee and hot water
- Automatic cleaning and descaling program
- Automatic rinsing cycle when the appliance is switched on and off
- Hot water function
- Water tank removable from the front
- Water filter
- Electronic push buttons
- Electronic clock with a date display
- Pre-set time
- Standby function (programmable)
- Red displays
- LED lamps
- Central switch-off
- Temperature control for 3 different coffee temperatures
- Adjustable coffee flavour (5 pre-set coffee strengths)
- Appliance can be pulled out on rails

5. Button functions

The electronic touch buttons can be used to select various drinks at the push of a button. The buttons are assigned in the factory. The individual buttons can be assigned to other drinks.

Factory pre-setting

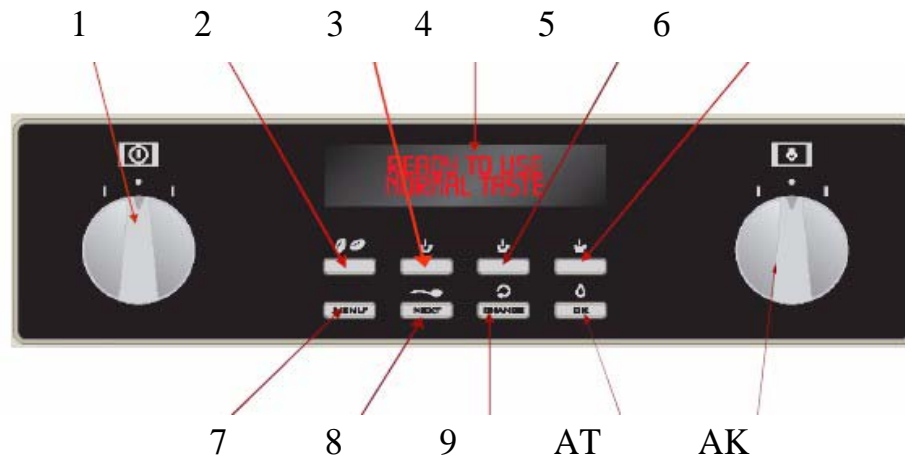


- 1 ON/OFF
- 2 Coffee selector button
- 3 Espresso selector button
- 4 Plain text display
- 5 Small coffee selector button
- 6 Large coffee selector button
- 7 Menu
- 8 CONTINUE coffee pre-ground
- 9 CHANGE rinse
- AT OK hot water
- AK Steam cappuccino

6. Test programmes

6.1 EKV 6200.0E

6.1.1 Test programme: Components

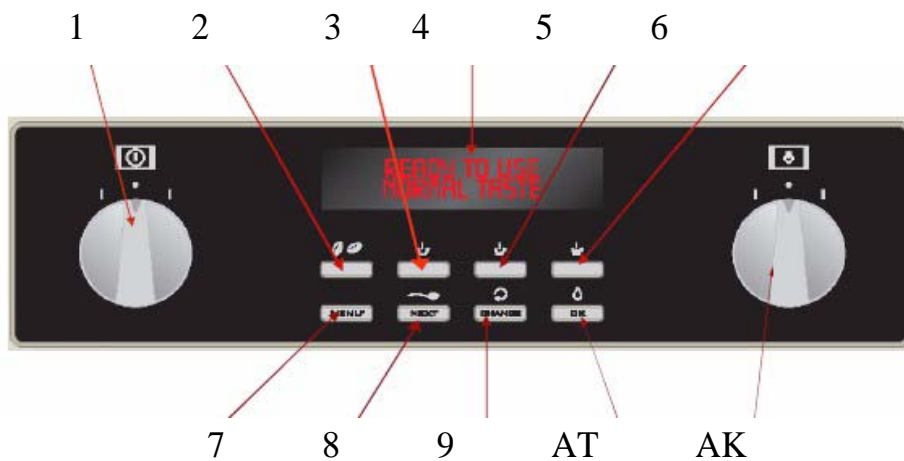


Please proceed as follows to access this test programme:

1. Press and hold buttons 3 and 6.
2. Insert the plug.
 - Press button 7 to switch on the coffee boiler heating element.
 - Press button 8 to switch on the fan and the lights.
 - Press button 9 to switch on the pump (only vibrate).
 - Press button *AT* to switch on the grinder.
 - Press button 1: motor up
 - Press button 2: motor down
 - Press button 3: EV 1 ON
 - Press button 5: EV 2 ON
 - Press button 6: Evaporator ON
 - Turn the steam button *AK*: EV1 + EV2 ON

Please pull out the plug to end the test procedure.

6.1.2 Test programme: Display

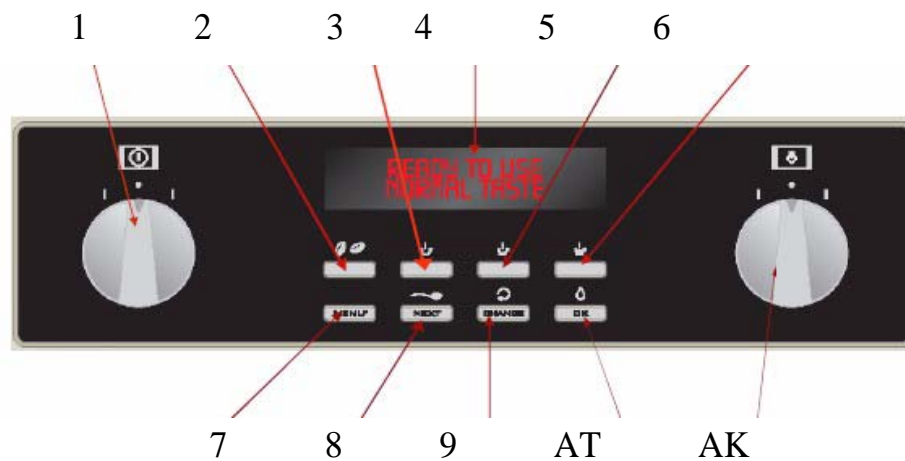


Please proceed as follows to access this test programme:

1. Press and hold buttons 5 and 6.
2. Insert the plug.
3. The corresponding button number will be show each time the different buttons are pressed.
 - When you turn the left button, the display will show 9 and 10.
 - When you turn the right button, the display will show 11 and 12.

After one minute the display test will end automatically and the appliance will switch off.

6.1.3 Test programme: Quantity metered



Please proceed as follows to access this test programme:

1. Press and hold buttons 7 and 9.
2. Insert the plug.

The display will show

- the number of cups of coffee made
- the water consumption in litres

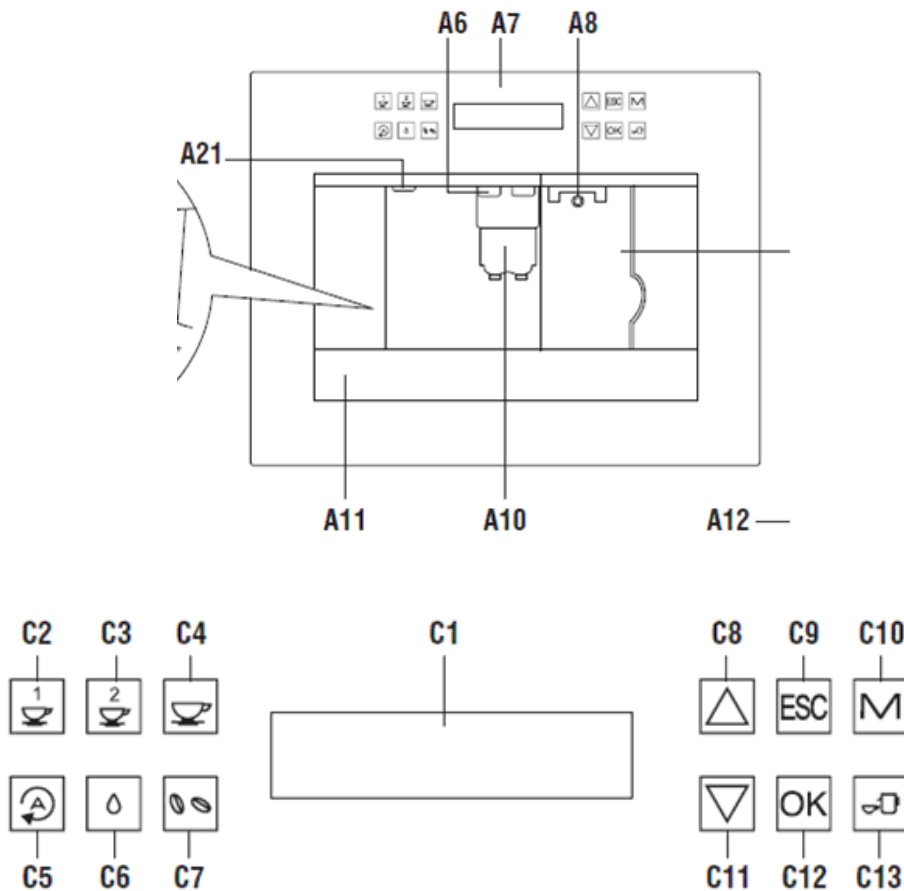
3. When button 8 is pressed the display will show

- the number of descaling cycles carried out

After one minute the display test will end automatically and the appliance will switch off.

6.2 EKV 6500.0E

6.2.1 Test programme: Components

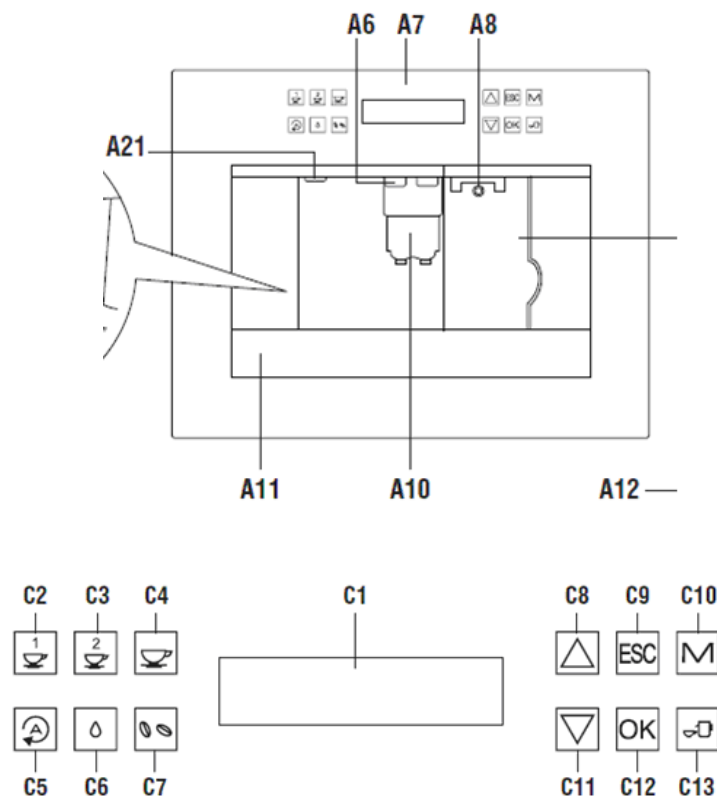


Please proceed as follows to access this test programme.

1. Switch the appliance into the standby mode with button A21.
2. Open the service door and press and hold buttons C2, C7 and C10 simultaneously. The display will show "Select Test".
3. Close the service door and press button C4.
 Press button C12 to switch on the pump (only vibrate).
 Press button C10. The motor will start and the brewing unit will be raised. :
 Press button C2 to switch on the coffee boiler heating element.
 Press A21 to switch on the steam boiler.
 Press button C6 to switch on EV 2.
 Press button C3 to switch on EV 1 and the fan
 Press button C13 to switch on EV1, EV2 and the light.
 Press button C7 to switch on the coffee grinder.
 Press button C4. The motor will go off and the brewing unit will be lowered.

Disconnect the appliance from the power supply or switch it off with the main switch to end the procedure.

6.2.2 Test programme: Display



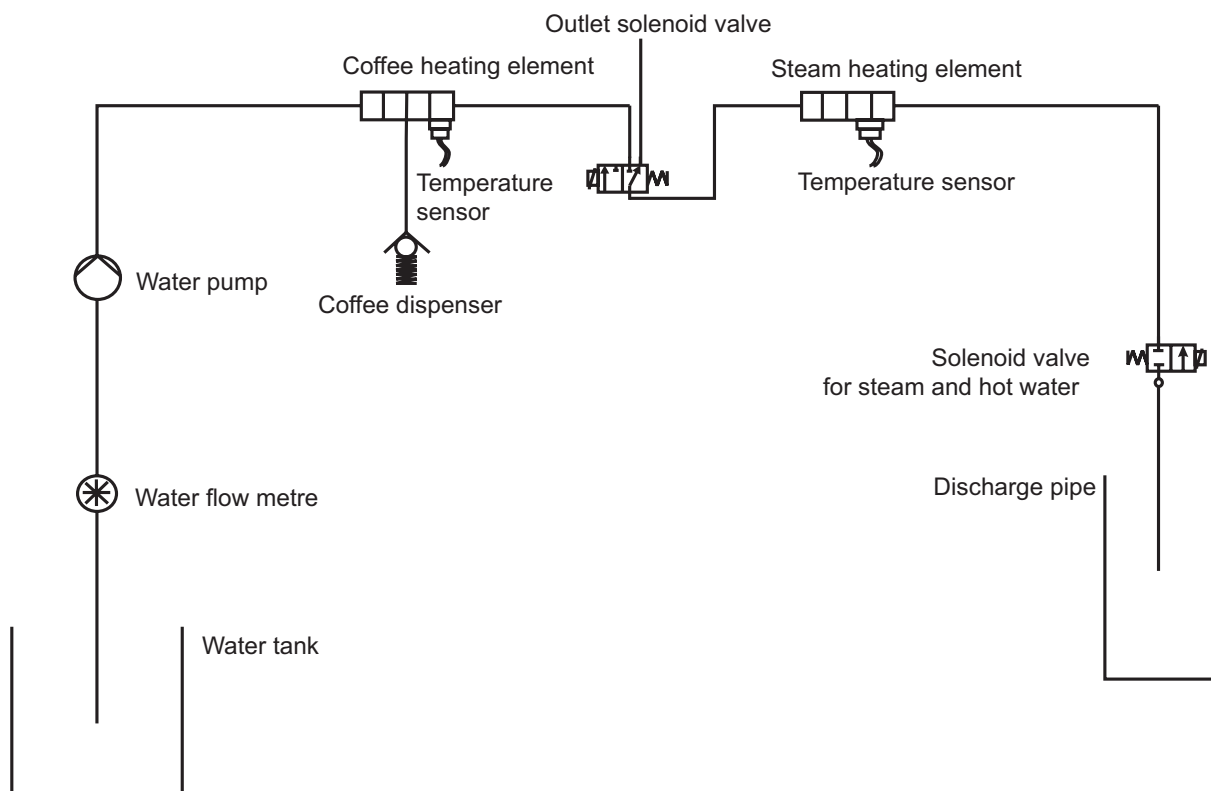
Please proceed as follows to access this test programme.

1. Switch the appliance into the standby mode with button A21.
2. Open the service door and press and hold buttons C2, C7 and C10 simultaneously. The display will show "Select Test".
3. Press button C 2. The display shows 0.
 Press button C 3. The display shows 1.
 Press button C ???. The display shows 2.
 Press button C13. The display shows 3.
 Press button C ???. The display shows 4.
 Press button C 4. The display shows 5.
 Press button C 7. The display shows 6.
 Press button C11. The display shows 7.
 Press button C 9. The display shows 8.
 Press button C10. The display shows 9.
 Press button C 8. The display shows 10.
 Press button C12. The display shows 11.
 Press button C 6. The display shows 12.
 Press button A 21. The display shows 13.

Disconnect the appliance from the power supply or switch it off with the main switch to end the procedure.

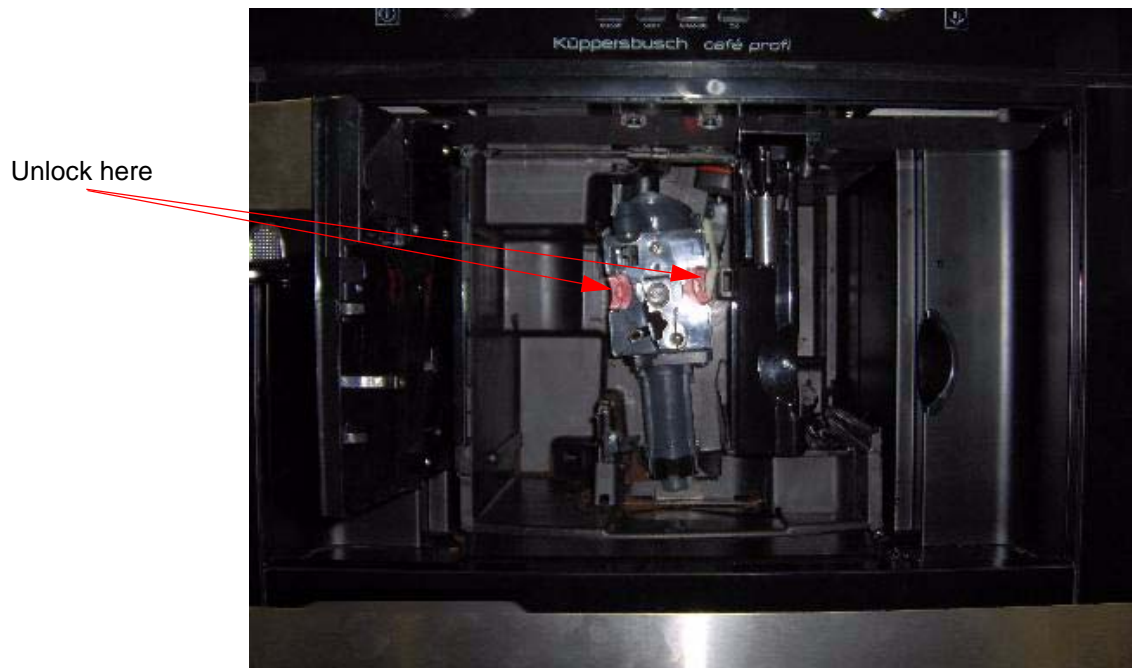
The appliance may need to be set at the required language when the test programme has been completed.

7. Water flow diagram



8. Accessing the individual components

8.1 Removing and installing the brewing unit



- **Attention!**
The brewing unit may not be removed when the coffee machine is switched on.
- **Do not attempt to remove the brewing unit with force since this may damage the coffee machine.**
- 1. Make sure that the coffee machine is switched off properly.
- 2. Open the service flap.
- 3. Remove the drip tray and the coffee grounds box.
- 4. Press the two red release buttons to the inside and at the same time remove the brewing unit outwards.
- **Attention!**
Do not use any detergent to clean the brewing unit as the inside of the piston has been smeared with grease. The detergent would remove the grease, causing the brewing unit to stick and it would no longer be possible to use it.
- 5. Submerge the brewing unit in water for about 5 minutes and then rinse it under running water from the tap.
- 6. Replace the brewing unit once it has been cleaned by placing it on the holder and on the pin that has been positioned at the bottom. Press the PUSH lettering firmly until you hear it clicking into place.

8.2 Removing the shelves



The shelves on the left and right can each be removed with three screws.

8.3 Removing the back appliance casing



Loosen the 8 screws and remove the back casing.

8.4 Removing the front cover



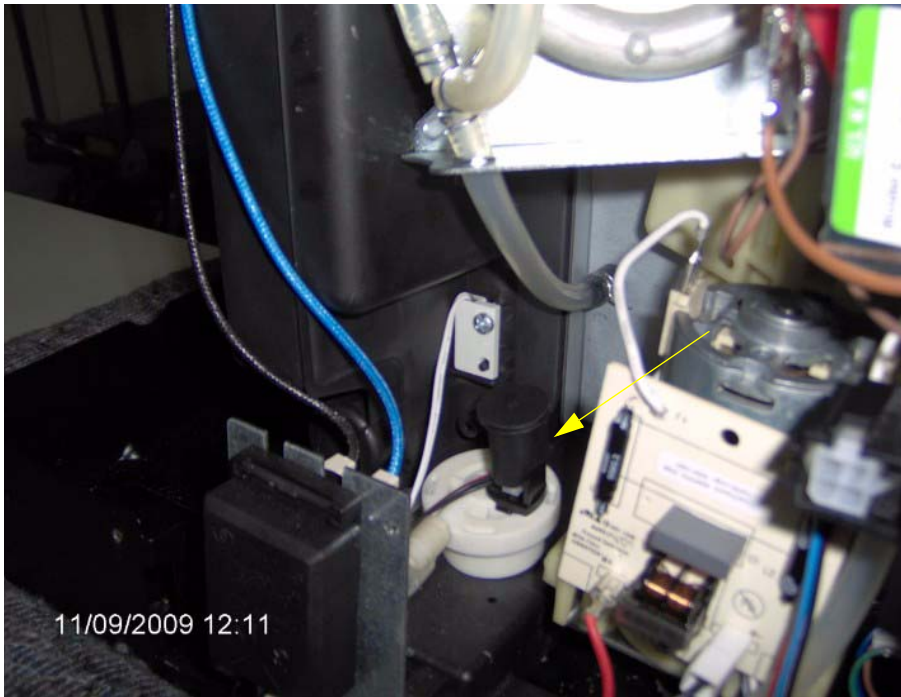
Loosen the 3 screws and remove the front cover.

8.5 Accessing the reed switch (water tank)

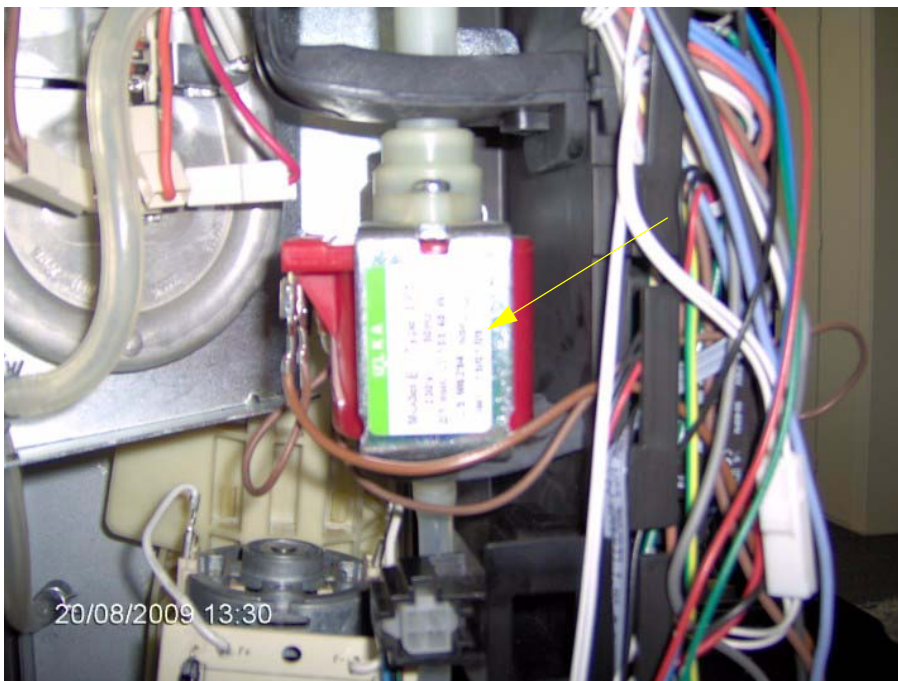


Reed switch, 2-pole

8.6 Accessing the flow metre



8.7 Removing the pump



Take off the two rubber mounts and remove the pump.

8.8 Removing the top cover



Loosen the 4 screws and remove the top cover.

8.9 Removing the continuous flow heater (water)



Loosen the 2 screws and remove the continuous flow heater.

8.10 Removing the continuous flow heater (coffee water)

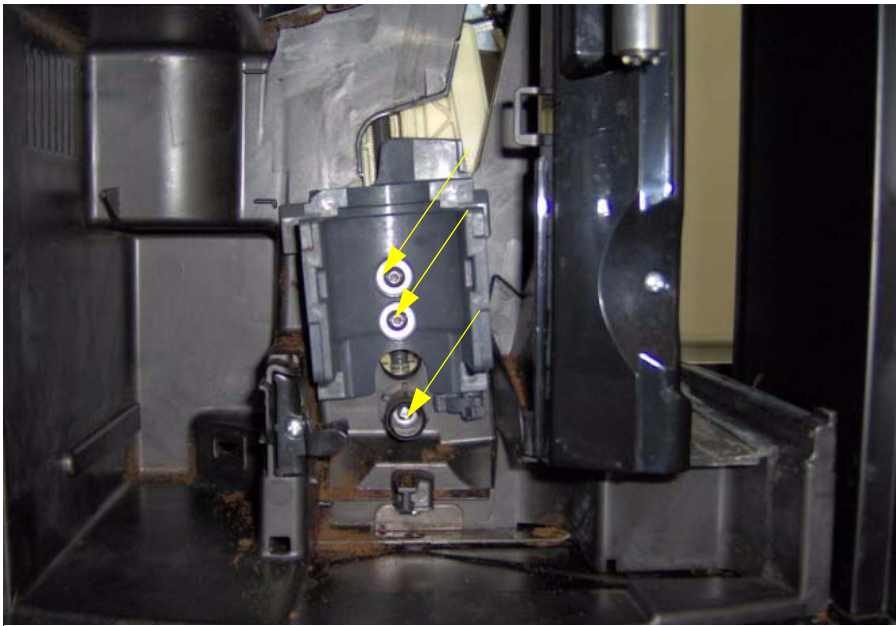


Loosen the 4 thread screws and remove the continuous flow heater.

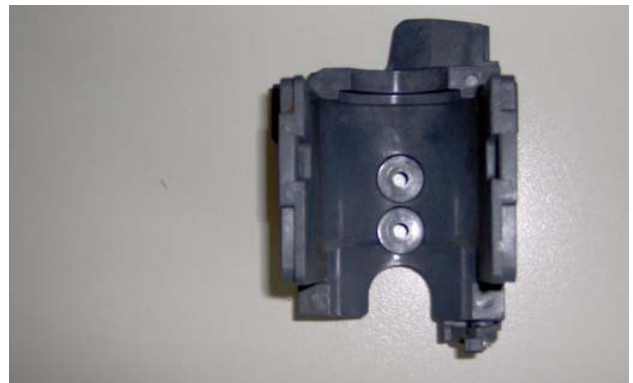
— **Attention!**
The counternuts have not been tightened and will fall downwards!

— **Attention!**
Disconnect the brewing unit micro switch!

8.11 Removing the brewing group motor



1. Loosen the 3 screws and remove the holder.



2. Remove the brewing group motor.

The motor is installed in reverse order.



8.12 Removing the electronic unit



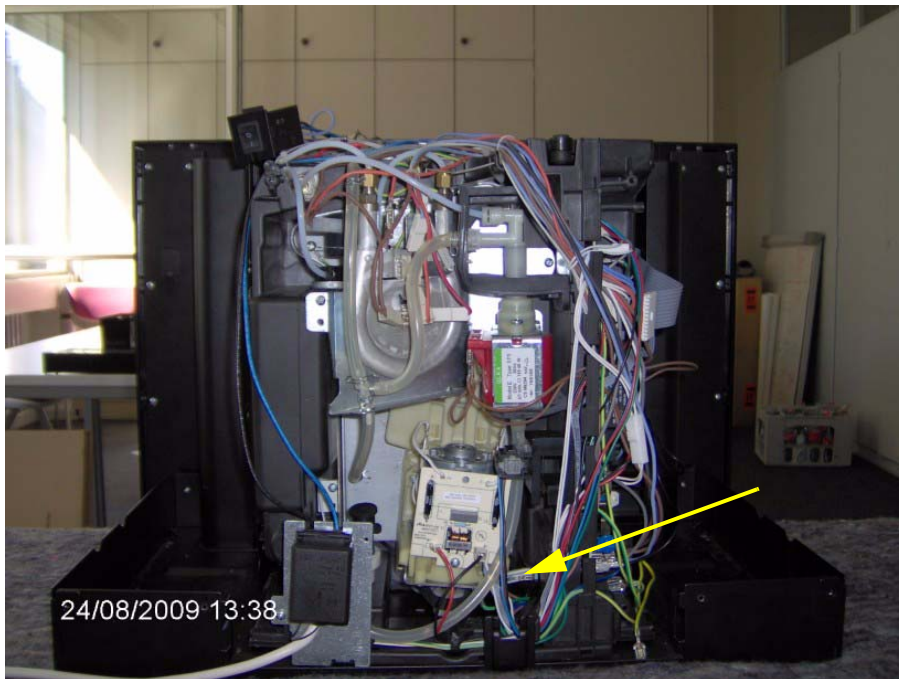
Loosen the 5 screws and remove the electronic unit.

— **Attention!**
There is no exchangeable fine-wire fuse here!

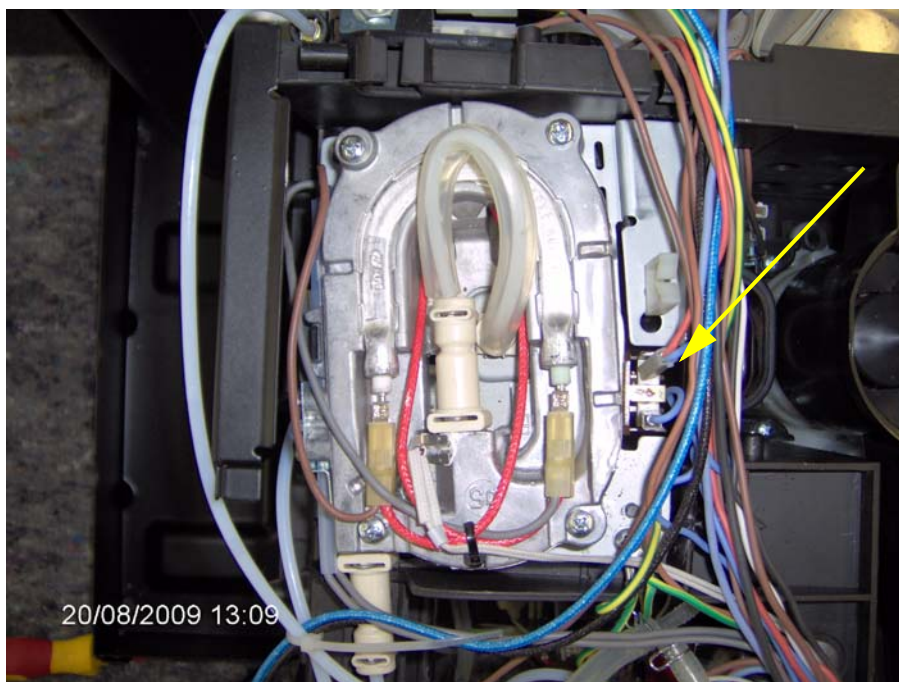
8.13 Accessing the micro switch in the door



8.14 Accessing the micro switch in the drip tray



8.15 Accessing the top micro switch in the brewing unit motor unit



Micro switch contact closed in the idle position.

8.16 Accessing the lower micro switch in the brewing unit motor unit



Micro switch contact open in the idle position.

8.17 Accessing the sensor electronics in the brewing unit motor

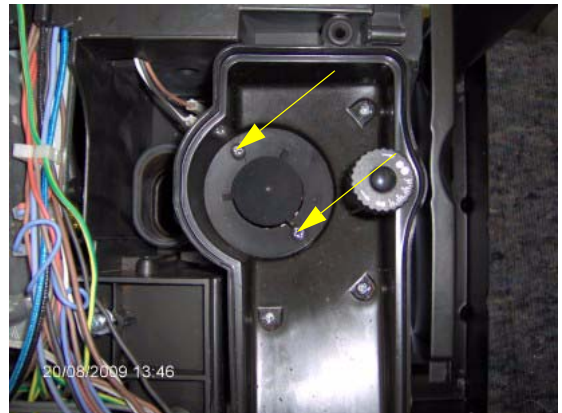


Loosen the 2 screws and remove the sensor electronic unit.

8.18 Accessing the coffee holder

8.18.1 Opening the grinder cover

1. Loosen the 2 screws and remove the grinder cover.

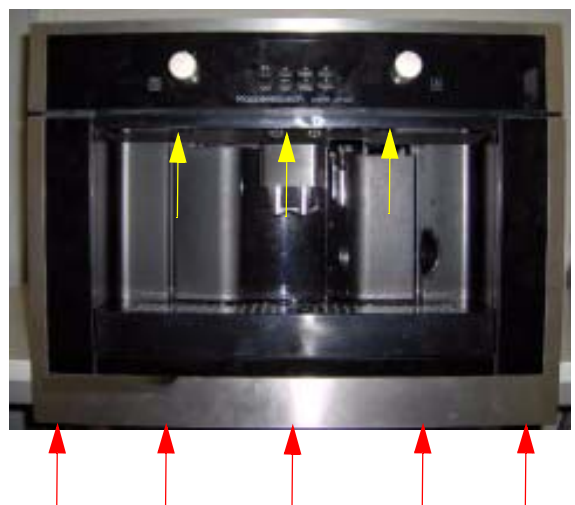


2. Loosen the 4 screws and remove the coffee holder.

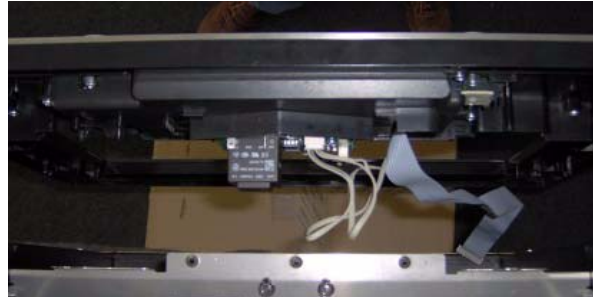


8.19 Working on the front panel and the electric controls

1. Remove all the screws and pull the front panel off slightly.



2. Pull the group connectors off and completely remove the front panel.



3. Loosen both screws and remove the control electronics.



4. Loosen both screws and remove the electric controls.

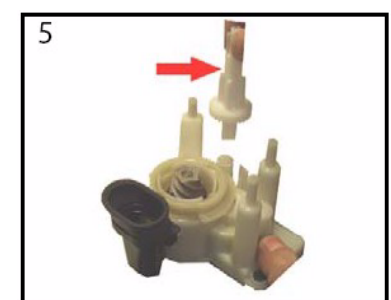
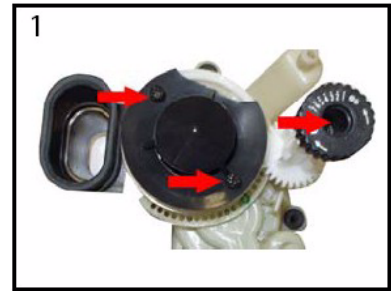


5. Loosen both screws in each case to remove the control switches.



9. The grinder - setting

1. Remove the coffee bean holder, the black finder and the button.
2. Turn the white shaft clockwise until it stops. Pull out the top part of the grinder.
3. Check whether the white gasket is positioned as in the illustration.
4. Pull the white plastic ring out upwards.
5. Turn the white shaft anti-clockwise until it stops and then pull it out.



6. You can now change the setting:

- Turn the toothed wheel **clockwise***, to set a fine grinding (fine ground coffee) or
- **anti-clockwise****, to set a coarse grinding (coarse ground coffee).

(*) Before making an adjustment you will need to mark the starting position of the metal ball, which you can extend through the holes in the white rings, as a reference mark.

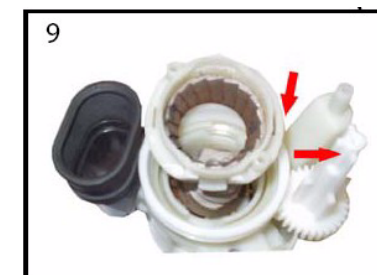
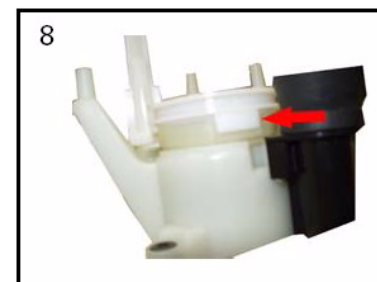
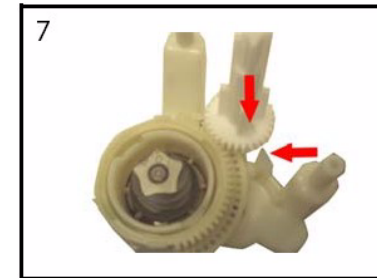
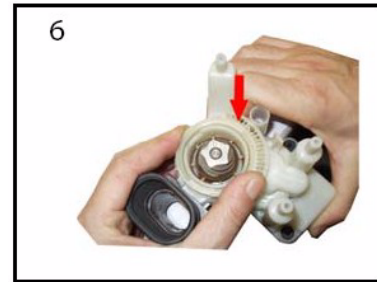
(**) Turn the white ring very carefully by one or two toothings (one or two holes) at the most.

7. Insert the white shaft so that the longer peg is exactly in line with the toothing.

8. Insert the white ring as shown in the illustration.

9. Turn the shaft clockwise until it engages in the top drive.

10. Then turn the shaft completely in the other direction.



10. Cleaning and care

Please read the corresponding section in the operation instructions.

- 1 Do not use steam and/or pressure cleaning machines to clean the appliance!**
The appliance may be seriously damaged and put your life at risk.
- 1 Risk of burning! Make sure the appliance has cooled down, at least until it is only slightly warm, before you clean it.**

11. Finding faults

Faults must always be distinguished as being **customer complaints** or **technical faults**.

The majority of customers complain that:

- the coffee has a poor flavour or it is not creamy enough
- the coffee is cold
- there is not enough froth on the coffee

Have all the technical documents, such as the manual and technical information, available for repairs.

11.1 Customer complaints

11.1.1 The coffee has a poor flavour or it is not creamy enough

Check the grinder setting for the ground coffee and adjust it if necessary.

1 Attention!
Only turn the button when the grinder motor is running!

If the grinder has been set at the lowest setting of 1 or the strongest setting of 7, it will need to be removed and the grinder disc re-adjusted. See here "The grinder - setting" auf Seite 31 .



11.1.2 Cold coffee

Usually customers have not pre-warmed the cup before making their coffee.

This is nevertheless very important, especially when it is cold outside, in order for the coffee to be really hot.

Check the coffee temperature as follows:

1. Make three cups of coffee one after the other.
2. Measure the temperature of the third cup of coffee as soon as it has been poured. The temperature should be $75^{\circ}\text{C} \pm 3^{\circ}\text{C}$. If the temperature is lower, check for lime deposits in the unit heater and run a descaling cycle.
3. Repeat the measurement.

11.1.3 Insufficient frothing

At least one functional component will be defect in the case of poor frothing. This may, for example, be a broken solenoid valve.

Check the following components:

1. Coupler and/or milk frother and hoses

Check whether there is still any "hardened" residual milk in the appliance and remove it. This is the most frequent cause of poor frothing.

1. Switch the appliance on and wait until "ready for coffee" is shown in the display.
2. Press the "clean" button to clean all the components and restore the full functioning of the machine.



3. Also clean any dirt that may be on the gaskets of the coupling.



4. Steam boiler

If the steam boiler is scaled you will need to descale it with diluted water.

5. Opening of the coupling

If the opening at the outlet is scaled, you will need to remove the whole coupling and clean all the parts, particularly the opening.



6. Gaskets warped and/or broken

If the gaskets no longer close properly, you will need to replace them **all** and you may need to replace the whole coupling as well.



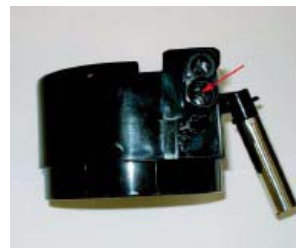
7. Check the appliance for any leaks, particularly the boiler.

**1 Only cold milk may be frothed!
Warm milk will splash and jam the appliance.**



8. Please also check the following:

1. ALWAYS clean the appliance with the holder installed.
2. Take out the hose and remove any residual milk that may have been deposited on the connector.
3. Also clean the opening on the other coupling.
4. Check to see whether there is any residual milk in the milk dispenser pipe. To do so, press the pipe out in the direction of the arrow ...
5. ... and remove the residual milk.



11.2 Technical faults

An error message will be shown in the event of a technical fault. This may be one of the following:

- General alarm
- Grinder setting too fine, set the grinder
- Fill up with coffee beans
- Fill up the water tank
- Descaling necessary

11.2.1 General alarm

There are various reasons for this error message.

When the error message is shown as soon as the appliance has been switched on, it is possible that one of the NTC temperature sensors on the coffee boiler or on the steam boiler has not been properly inserted or is defect.

1. Check the connections on the NTC sensors.



Coffee boiler



Steam boiler

2. Also check the connections on the circuit board. If the resistance is 0Ω (short circuit) or infinite (open circuit), you will need to replace the NTC sensors.



If an error message is shown when the motor has already been running for a short time, please check the following:

1. Check the top and bottom limit switches and replace them if necessary.



Top limit switch



Bottom limit switch

2. Check the connection on the main board of the sensor board and replace it if necessary.
3. Replace the main board.



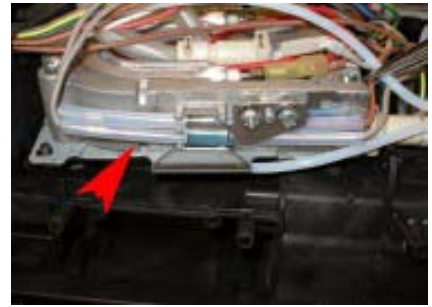
Sensor board



Sensor board connection

If the error message is shown after approx. 6 minutes when the appliance is heating up and if the display shows “appliance heating up, please wait”, the fault may lie with the boiler temperature.

1. Check to see whether the boiler/s has/have reached the specified temperature.
2. Check the over-temperature protection on the steam boiler and the coffee boiler.
3. Firstly check the connections on the circuit board and replace the faulty part. Thanks to the test programme you will be able to recognise immediately which over-temperature protection device / which boiler is defect.



Coffee boiler



Steam boiler

If the error message is shown after the motor of the brewing unit has made strange noises:

1. Check whether the top and bottom limit switches are closing mechanically.



Top limit switch



Bottom limit switch

11.2.2 Grinder setting too fine, set the grinder

This error message can be shown for the following reasons.

Air in the water cycle

1. Set the grinder at a slightly higher setting - ONLY WHEN THE MOTOR IS RUNNING!
2. Check whether the water tank has been properly installed and pour a little water into the tank through the hot water delivery pipe to unblock the pipes.
3. Check the connections and/or replace the water flow metre.
4. Check whether the permanently installed filter under the water tank is dirty and clean it or replace it if necessary.
5. Look for the cause of the blocked boiler, pull the water intake hose out and allow the pump to operate in the test programme so that the air bubble is removed.



Water intake hose



Water hose

11.2.3 Fill up with coffee beans

This error message can be shown in the display for several reasons:

The motor is running, but it is making strange noises (running freely).

In this case you will have to rectify the mechanical cause (little stones or another foreign object between the grinder discs).

1. Remove the top part of the grinder and then the interfering object. However, it is also possible that too much ground coffee has been filled in and you will need to take this out.
2. Allow the test programme to run and check if the motor is still running freely. If the internal transport belt is worn out, you will need to replace the whole grinder.

If the motor is not running, you will need to replace the whole grinder.

11.2.4 Fill up the water tank

This display appears when

- there is too little water in the tank;
- the water cannot flow freely in the tank;
- the red switch on the main board is loose. Fasten it or replace it.

11.2.5 Descaling necessary

The appliance is fitted with a flow metre that measures the quantity of water used. After a certain limit, which is set according to the water hardness level, has been reached, the appliance will show that a descaling cycle needs to be operated.

Carry out the descaling cycle and follow the instructions in the menu.

Descaling will not have been sufficient if the message still appears. Repeat the descaling cycle.

Never use vinegar since this will damage the appliance. Use a commercially available descaling agent that is suitable for the appliance.

Descaling intervals

Your water hardness		Water quantity to be set
Hardness range 1	0 - 7 °dH	250 litres
Hardness range 2	7-14 °dH	130 litres
Hardness range 3	14-21 °dH	80 litres
Hardness range 4	>21 °dH	40 litres

12. Circuit diagram

