Coffee Machine

Service Service Service

Syntia cappuccino



Service Manual

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EN 4219 400 00008

2010-November-rev.00



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CHAPTER 1

INTRODUCTION

1.1. Documentation required

The following documentation is required for repairs:

- Instruction booklet of the specific model
- Technical documentation of the specific model (diagrams, exploded drawings)

1.2. Tools and equipment required

Besides standard equipment, the following tools are required:

Qty.	Description	Notes
1	Screwdriver	Torx T 8 - T 10 - T 20
1	Pliers for Oetiker clamps	
1	AC - DC - Vdc tester	
1	Digital thermometer	Full scale > 150°C
1	SSC (Saeco Service Center)	Programmer (for programming and diagnosis mode)

1.3. Material

Description	Notes
Thermal grease	Thermal resistance > 200°C
Descaler	Saeco descaler
Degreaser	Personal choice
Silicone grease	Safe to use with food

1.4. Safety warnings

It is recommended to consult the technical manual of the appliance before implementing any operation.

Comply with all applicable standards relating to the repair of household appliances.

Always disconnect the power plug from the mains before beginning repairs on the appliance. Simply turning off the main switch is not sufficiently safe to prevent electrical discharges.

This household appliance is rated as insulation class I.

On completion of the repairs, insulation and dielectric rigidity tests must be performed.

1.5. Syntia Cappuccino Range



	DO PSA SYNTIA CAPPUCCINO SS
Display interface	X
With brushed stainless steel parts	X
With parts made of ABS	
Milk carafe	X
Automatic dosing (SAS)	X
Quantity of dispensed coffee saved in memory	x
Auto-rinse	X
Automatic shutdown (after 60' inactivity)	x
Compartment for ground coffee	X
Automatic descaling cycle	X

1.6.1. External appliance parts



1.6.2. Internal appliance parts



CHAPTER 2

TECHNICAL SPECIFICATIONS

2.1. Technical specifications

Power supply and output:	240 V~ 50 Hz 1400 W - 230 V~ 50/60 Hz 1400 W - 120 V~ 60 Hz 1500 W - 100 V~ 50/60 Hz 1300 W
Temperature control:	Variable resistor sensor (NTC) transmits the value to the control board
Safety system:	2 manual reset or one-shot thermostats (175°C)
Coffee heat exchanger output:	(230/120 V~) 1300 W - (100 V~) 1100 W
Stainless steel	to dispense coffee, hot water and steam
Gearmotor:	33VC 2 rotation directions; 24VC power supply
Pump:	Ulka with reciprocating piston and 120°C cutout 48 W, 230V, 50 Hz, Type EP5 approx. 13-15 bar 120V, 60Hz 100V, 50/60 Hz
Overpressure valve:	Opening at approx. 16-18 bar
Water filter:	In tank
Coffee grinder:	Direct current motor with flat ceramic grinder blades
Automatic dosage	Dose adjustment controlled by the electronic system
Consumption:	During the heating phase - approx. 5.6 A
Consumption in Stand-by	< 1 W
Dimensions: W x H x D in mm:	256x315x415
Weight:	9 kg
Water tank capacity:	1.2 l.
Coffee container capacity	260 g coffee beans
Dreg drawer capacity	8
Heat exchanger capacity:	Approx. 10 cc
Water circuit filling time:	Approx. 15 sec Max. on first filling cycle
Heating time:	Approx. 45 sec.
Dispensing temperature:	Approx. 84°± 4°
Grinding time:	approx. 8-10 sec.

2.2. Appliance parameters and performance

PRODUCT QUANTITY	Minimum quantity (Puls.)	Default quantity (Puls.)	Maximum quantity (Puls.)	Set by the user	Set by the Production/Service Dept
Expresso	70	165	600	Yes	No
Average coffee	No	No	No	No	No
Expresso lungo	70	440	600	Yes	No
Pre-ground	Yes				
Hot water	Continues until the water is used up (capacitive sensor)				
Steam	Continues until the water is used up (capacitive sensor)				

RINSE	Initial rinse	Final rinse
When performed	When the appliance is switched on and the boiler temperature is $\leq 50^{\circ}$ C	When the machine is switched off electronically, manually or automatically after 60', if at least one coffee has been dispensed before being switched off
No. of Pulses	180	80
Stop option	Yes, by pressing any button	Yes, by pressing any button
Can be disabled by the user	No	No
Can be disabled by the Production/Service Dept	No	No
No. of pulses adjustable by the user	No	No
No. of pulses adjustable by the Production/Service Dept	No	No
Pulse range (Min - Max)	No	No

WATER HARDNESS

ADJUSTABLE

Descaling frequency					
Hardness	Water hardness	Without anti-scale filter	With anti-scale filter		
1	Soft (up to 7°dH)	240 litres (480,000 pulses)	480 litres (960,000 pulses)		
2	Medium (7° - 14°dH)	120 litres (240,000 pulses)	240 litres (480,000 pulses)		
3	Hard (15° - 21°dH)	60 litres (120,000 pulses)	120 litres (240,000 pulses)		
4 Very hard (over 21°dH) 30 litres (60,000 pulses) 60 litres (120,000 pulses)					
The default water hardness level is 3. Each litre of water corresponds to approximately 2,000 pulses.					

02 TECHNICAL SPECIFICATIONS

DREG DRAWER	Description and values
Time-out for dreg drawer	5 sec.
Alarm to empty dreg drawer block after	8 lots of dregs
(double expresso as the last dispensed product)	(9 lots of dregs)
Warning to empty dreg drawer	No
Reset dreg counter	Each time the dreg drawer is removed for at least 5 seconds, even if the "empty dreg drawer" alarm is not triggered

STAND-BY	Description and values
Input time (min - max)	15 minutes - 180 minutes
Input time (default)	60 minutes
Input time set by user	Yes
Input time set by	Yes
the Production/Service Dept	
Boiler temperature during Stand-by	Boiler OFF

WATER TANK	Description
Level sensor	Yes
Water reserve (pulses)	200
Water reserve modifiable by the Production/Service Dept	No
"Fill tank" alarm	Yes
"No tray" alarm	No
Water mains	No

CHAPTER 3

USER INSTRUCTIONS

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3.1. Customer and programming menu

Expresso dispensing button Expresso lungo dispensing button

Cappuccino/milk dispensing button



Appliance ready mode indications (GREEN)

Indications	Causes	Solutions
	The appliance has reached the temperature - to dispense coffee beans - to dispense hot water	Dispense the product
<u> </u>	The appliance has reached the temperature - to dispense ground coffee (pre-ground)	Dispense the product
	The appliance is ready to dispense hot milk	Dispense the product
<u></u>	The appliance is dispensing hot water	Dispense hot water
	The appliance is dispensing a coffee	Wait for the dispensing process to end (press the button again to stop dispensing)
	The appliance is dispensing two coffees	Wait for the dispensing process to end (press the button again to stop dispensing)
	The appliance is dispensing a cappuccino with coffee beans.	Stop the dispensing process as desired
	The appliance is dispensing a cappuccino with ground coffee.	Stop the dispensing process as desired
	The appliance is programming the amount of coffee to be dispensed.	Stop the dispensing process as desired
	The appliance is programming the amount of hot milk to be dispensed.	Stop the dispensing process as desired
	The appliance is programming the amount of cappuccino to be dispensed.	Stop the dispensing process as desired

Warning indications (ORANGE)

Indications	Causes	Solutions	
	Appliance is in heating mode to dispense coffee, hot water or steam	Wait for the heating process to end (see the progress bar)	
	The appliance is in rinsing mode wait for the appliance to complete the operation	Wait for the operation to be completed	
	The machine requires a descaling cycle	Perform a descaling cycle Press the aroma/pre-ground coffee button for 5 seconds to access the descaling cycle	
	The brewing unit is in restart mode for the appliance to be reset	Wait for the restart to be complete	
	Fill the coffee bean container and restart the dispensing cycle	Fill the coffee bean container	
	The appliance requires the Intenza filter to be replaced	Replace the filter. This message is displayed if the function is activated via the programme	
+ OFF ▶ RESET 4 €SC OK		The alarm is only disabled if "RESET" is performed via the programme	
GLEAN	The appliance requires the milk system to be cleaned	After having washed the milk unit, press the Dutton to cancel the message	

Alarm indications (**RED**)

Indications	Causes	Solutions	
>C	Switch the appliance off and back on after 30 seconds. Repeat this twice or three times	off and back on after 30 If the appliance does not go on, contact the twice or three times Service Centre.	
Problems with the water circuit. Press the			
X	No coffee beans inside the container.	Restart the cycle after having filled the coffee container	
X	No water	Fill the water tank	

Indications	Causes	Solutions		
30	Service hatch open: Close it If the service hatch is opened while a product is being dispensed, the appliance stops dispensing and starts a 30 sec countdown before cancelling the dispensing process. The countdown can be interrupted by closing the service hatch and the dispensing process continues where it stopped from.			
٥	Bring the hot water/steam stopcock knob to the correct position. If the knob is turned (opened) while a product is being dispensed, the appliance stops dispensing and starts a 30 sec countdown before cancelling the dispensing process. The countdown can be interrupted by closing the knob and the dispensing process continues where it stopped from.			
-	No brewing unit If the brewing unit is removed while a product is being dispensed, the appliance stops dispensing and starts a 30 sec countdown before cancelling the dispensing process. The countdown can be interrupted by reinserting the brewing unit and closing the door - the dispensing process continues where it stopped from.			
L	Empty the dreg drawer and the drip tray	To reset the dreg counter, wait for the dreg value inside the icon on the display to disappear (5 seconds)		
-U	Insert the dreg drawer	When the dreg counter is reset, the icon is displayed with no dreg value		

Indications	Causes		Solutions			
	Descaling CYCLE					
	(press the Aroma/pre-ground	coffee butto	n for 5 seconds)			
OK Saeco	 Initial screen to enter the descaling cycle. Press "esc" to exit 	START	5) Rinse cycle of the descaling cycle during the pause mode			
STOP	2) Descaling cycle being performed	END →	6) Descaling cycle ended. Press the Dutton to exit the cycle			
START	3) Descaling cycle in Pause mode	Ø	7) Fill the tank with fresh water			
STOP	4) Rinse cycle of the descaling cycle being performed					

	MENU (controls and programmes)				
	Turn the selector anti-clockwise until "MENU" is reached in order to access the programming menu in appliance ready mode Press to scroll the 				
+ ESC MAX MED 4 MIN -	Coffee temperature: This function adjusts the dispensing temperature of the coffee.				
$\begin{array}{c} + \\ & 180' \\ & 60' \\ & 30' \\ & 15' \end{array} \qquad \bigoplus \\ \end{array} \qquad \qquad$	Timer (Stand-by): This function adjusts the interval to switch to Stand-by after the last product is dispensed.				
+ ESC - ESC	Contrast: This function adjusts the contrast of the display for the messages to be read better.				
+	Water hardness: This function adjusts the water hardness for better management of appliance maintenance. ▲ = very soft water ▲▲ =soft ▲▲▲ =hard ▲▲▲▲ =very hard				
+ ESC OFF PRESET	"INTENZA" water filter This function lets the user manage the "INTENZA" water filter.				
START ,	Descaling cycle This function lets the user manage the appliance descaling cycle.				
+ ESC YES NO 4	Default settings This function restores the default settings.				

3.2. Operation, cleaning and maintenance

	Operating the machine				
1	1 Fill the water tank				
2 Fill the coffee bean container					
3	3 Switch on the appliance				
4	Fill the circuitInsert a container beneath the dispenser, turn the selector to the " 				
5	Press the coffee button	Press once for one coffee and twice for two coffees			

	CLEANING AND TECHNICAL ASSISTANCE			
А	A Empty the dreg drawer If indicated			
В	Empty the drip tray	As necessary		
С	Clean the water tank	Weekly		
D	Clean the coffee bean container	As necessary		
E	Clean the casing	As necessary		
_	Clean the coffee unit	Every time the coffee bean container is filled or once a week		
F	Lubricate the coffee unit	Monthly or after 500 dispensing cycles		
	Clean the unit housing	Weekly		
Н	Descaling cycle	If indicated		
G	Clean the milk frother	After it is used		

Descaling frequency					
Hardness Water hardness Without anti-scale filter With anti-scale filter					
1	Soft water (up to 7°dH)	Approx. 3 months or 120 litres	Approx. 6 months or 240 litres		
2	Medium Water (7°-14°dH)	Approx. 2 months or 90 litres	Approx. 4 months or 180 litres		
3	Hard Water (15°-21°dH)	Approx. 6 weeks or 60 litres	Approx. 3 months or 120 litres		
4	Very hard water (over 21°dH)	Approx. 4 weeks or 30 litres	Approx. 6 weeks or 60 litres		

CHAPTER 4

OPERATING LOGIC

4.1. Water circuit



STATUS OF SOLENOID VALVES EV1 AND EV2 DURING THE VARIOUS FUNCTIONS				
FUNCTION EV1 EV2				
COFFEE OFF OFF				
		ON (it opens after 5 seconds to drain any water residue inside the circuit)		
HOT WATER	ON	ON		

4.2. Frother valve assembly



The milk is frothed as follows:

- **1)** The steam goes through the frothing valve, thereby creating a depression that draws the milk and a percentage of air
- **2)** The milk is drawn from the carafe and is mixed with the air that is drawn through the slot on the carafe connection.
- **3)** STEAM AIR MILK are mixed inside the Venturi Pipe, thereby forming froth.

4.3. Stopcock



When dispensing coffee - cappuccino, the mushroom valve opens at 4bar +/- 0.5.

4.4. Coffee cycle

Main switch ON	START		STOP	
Time				
Coffee grinder			Pulses (Dosage)	
Heating	approx.45 sec.			
Pump			Pump action (flow meter pulses) depending on the set quantity of the product	
Gearmotor Brewing unit	↓ <mark>↑</mark>		↑ ↓	
Mode	Heating	Ready	Coffee cycle	

Notes: * Only with Pre-brewing



Single microswitch gearmotor

Switch-on

When the appliance is switched on, the gearmotor repositions itself as follows:

- It stresses microswitch 1 (see the following chapter)
- The gearmotor changes the rotation direction and moves upwards again by approx. 1-2 mm
- The boiler begins to heat the water for approx. 45 sec. at full power in order to

reach the optimal temperature. The temperature will then remain constant.

Coffee cycle

- 1. The coffee grinder starts the grinding process (controlled by pulses generated by a sensor)
- 2. The gearmotor (coffee unit) moves to the dispensing position
- 3. Preliminary dispensing phase (short pump activity, short pause)
- 4. The product is dispensed (the pump operation time depends on the amount of product dispensed)
- 5. The gearmotor moves to the idle position (the dregs are expelled automatically)

4.5. Single microswitch



The gearmotor is activated by a direct current motor that acts on the smaller double toothed wheel via a worm screw. The unit is mounted on the axle of the large toothed wheel and when a coffee is requested, it moves from the idle position to the dispensing position to then return to the idle position.

- Idle position: 1
- Dispensing position: 2

4.6. Temperature sensor (adjustment)

Temp. (° C)	R nom (kΩ)	ΔR (+/- %)
20	61.465	8.6
50	17.599	5.9
75	7.214	4.1
80	6.121	3.7
85	5.213	3.4
90	4.459	3.1
100	3.3	2.5
125	1.653	3.9
150	0.893	5.1

An NTC is used as a temperature sensor, which reduces the resistors consumption, in the event of overheating.

The electronic system detects the actual boiler temperature from the drop in voltage and adjusts it accordingly.

Resistor values and corresponding temperatures: see table

4.7. Coffee grinder



The coffee grinder is activated by a direct current motor (1) via helicoidal wheel transmission and a worm screw (2).

The worm screw (2) activates a plastic toothed wheel (3), which turns the lower grinder blade (4) and the increment pin (5)

There are two magnets (6) in the toothed wheel and with every rotation they transmit two pulses to a Hall sensor, which in turn transmits them to the electronic system.

4.8. Detection of coffee bean absence, dose adjustment, blocked coffee grinder



No coffee

When no coffee beans are present, this is detected by the Hall sensor due to variations in the pulse frequency (with or without coffee).

If there are no coffee beans (operation while empty), the number of rotations and therefore the number of pulses, will be greater.

t1 = no coffee indication

If there are coffee beans, the number of rotations will be lower due to the force created during the grinding process. **t2 = no indication**

t3 and t4 = this reading is taken at the end of each grinding process

Dose quantity adjustment

The dose quantity is adjusted in accordance with the pulses detected.

(number of rotations proportional to the weak, medium and strong flavour selection).

Blocked grinder blades

If the coffee grinder is blocked for any reason, pulses will no longer be transmitted to the electronic system and the grinder stops.

4.9 Auto-learning dose (SAS)

The aim of this function is to automatically adjust the average dose of ground coffee (AUTO-LEARNING); this occurs by means of an algorithm based on three pieces of information detected by the appliance board:

- 1. Number of coffee grinder pulses during the grinding cycle
- 2. Max average value of the power consumed by the gearmotor during the coffee brewing cycle
- 3. Flavour selected by the user

The algorithm compares the maximum average value of the power consumed by the gearmotor with the value shown in the table, depending on the selected flavour, in order to calculate the new grinding pulse value for the next coffee product.

If the consumption value is less than the minimum current value, the grinding pulses will be increased by 2.

If the consumption value is greater than the maximum current value, the grinding pulses will be decreased by 4.

If the consumption value falls within the "excessive stress" range, the product is dispensed and the grinding pulses will be decreased by 10.

If the consumption value falls within the "expel" range, the pad will be expelled and the grinding pulses decreased by 10.

If the "pre-ground" flavour is selected by the user, no modification is made.

This guarantees that regardless of the coffee type used, the grinding adjustment and any wear on the grinder blades always remains constant.

Setting / Status		Power consumption in mA	The pulse is corrected in the next grinding process		
			Exceeded in excess	Exceeded in default	
А	Mild flavour	200 - 300 mA	- 4	+2	
В	Medium Flavour	301 - 450 mA	- 4	+2	
С	Strong Flavour	451 - 600 mA	- 4	+2	
D	Stress	601 - 800 mA	- 4		
E	Excessive stress	801 - 1,000 mA	- 10		
F	Pad expulsion	> 1000 mA	- 10		

Important:

For perfect operation, the adjustment is carried out in the area of the fields highlighted in green (A, B and C). When the type or brand of coffee is changed, there may be variations in the size of the beans and their stickiness or roasting level. This leads to variations in power consumption (mA), resulting in excessive or insufficient doses (until the adjustment compensates this change).

Caution: In case of an excessive dose, ground coffee can fall into the dreg drawer. This is not a fault, but can occur when the machine is switched on or following a service.

4.10. Water level detection (water tank)



4.11. Water level detection (drip tray)



Empty residual water tank indication

Function:

The residual water level is monitored by a capacitive sensor. The sensor is located approximately half way up the upper edge of the residual drip tray. To make the best of the tray capacity, the sensor is positioned near a dam device. In this way, the residual water tray fills up to the upper edge and overflows inside and when it reaches the sensor, it triggers the "empty residual water tank" indication.

4.12. Descaling request



Flow meter pulses

Descaling indication with anti-scale filter

(only in appliances equipped with a display)

The water hardness is set on the basis of the regional water hardness analysis (1, 2, 3, 4).

Disabled filter:

If the function is **disabled**, the electronic system counts the flow meter pulses, recording **one pulse for every revolution.**

Enabled filter:

If the function is **enabled**, the electronic system counts the flow meter pulses, recording **one pulse for every two revolutions**.

"Change anti-scale filter" indication

The electronic system uses the flow meter pulses to keep track of the amount of water that flows and once the defined litres are exceeded (based on the water hardness setting), the "Replace filter" indication is triggered.

4.14 Anti-scale filter



Anti-scale filter

Function:

- Reduced limescale deposits that take longer to form.
- Improved water quality.
- Better taste due to ideal water hardness.

Descaling duration / efficiency:

- - 10° dH
- 60 litres
- 2 months

To obtain a linear characteristic of its effectiveness, throughout the duration of the descaling process, the water is split according to the degree of hardness in a three-phase by-pass (A,B and C). See small picture.

CHAPTER 5

TROUBLESHOOTING

5.1. Test mode

	5.1. Test mode						
<				2. k 3. s 1			
lev.	knob pos.	display	button	function	notes		
Software <mark>C</mark> version	∭ S	FIRMWARE 00.02.00		The software version is displayed	The software version must be the same as that on the label of the Microprocessor.		
		PRESS THE	ON/OFF	BUTTON TO ACCESS	THE UPPER LEVEL		
L1		KEYBOARD 1N N5 2N N N4 3		Initial status, buttons not pressed			
f the buttons		KEYBOARD 1Y N5 2N N N4 3 KEYBOARD 1N N5	MEMO	the no. 1 from "N to Y" and the display changes from green to red the no. 2 from "N to Y" and the display	If the display does not change with respect to the initial status, replace the interface board and/or the JP21 flat cable. If the colour of the display remains green, check the		
tion o	} ???	2Y N N4 3	МЕМО	changes from green to orange	the back4.release the expresso buttonfunctionnotesfunctionhe software version is displayedThe software version must be the same as that on the label of the Microprocessor.ON TO ACCESS THE UPPER LEVELInitial status, buttons not pressede no. 1 from to Y" and the play changes n green to red to orangee no. 3 from to Y" and the play remains greene no. 3 from to Y" and the play remains greenfit he display does not change with respect to the initial status, replace the interface board and/or the JP21 flat cable. If the colour of the display remains green, check the JP4 wiring from the interface board to the display.e no. 3 from to Y" and the play remains greene no. 4 from to Y" and the play remains greene no. 5 from to Y" and the play remains greene no. 5 from to Y" and the play remains greene no. 5 from to Y" and the play remains green, check the JP21 flat cable. If the colour of the display remains green, check the JP21 flat cable. If the colour of the display remains green, check the JP21 flat cable. If the colour of the display remains green, check the JP21 flat cable. If the colour of the display remains green, check the JP21 flat cable. If the colour of the display remains green, check the JP21 flat cable. If the colour of the display remains green, check the JP21 flat cable. If the colour of the display remains green, check the JP21 flat cable. If the colour of the display remains green, check the JP21 flat cable. If the colour of the display remains green, check the JP		
Functional verification of the		KEYBOARD 1N N5 2N Y N4 3	D	the no. 3 from "N to Y" and the display remains green	respect to the initial status, replace the interface board and/or the JP21		
Function		KEYBOARD 1N N5 2Y N Y4 3		the no. 4 from "N to Y" and the display remains green	respect to the initial status, replace the interface board and/or the		
		KEYBOARD 1Y Y5 2N N N4 3	٢	the no. 5 from "N to Y" and the display remains green	display remains green, check the JP4 wiring from the interface board		
		PRESS THE	ON/OFF	BUTTON TO ACCESS	S THE UPPER LEVEL		

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lev.	knob pos.	display	button	function	notes	
L2		INPUTS TAPMENU=N DOOR=Y TAPCAP=Y BU-P=Y TAPWATER=N DREG=Y TANK-H2O=Y TRAY=Y		Initial status: Unit connected, dreg drawer inserted, water tank fu water drip tray inserted, side door closed and contro knob in the coffee position.		
		INPUTS TAPMENU=N DOOR=Y TAPCAP= Y BU-P=Y TAPWATER=N DREG=Y TANK-H2O=N TRAY=Y	Remove the water tank	TANK-H2O signal changes from "Y" to "N"	If the TANK-H2O signal does not change, check the capacitive sensor and the JP23 wiring.	
ation sensors		INPUTS TAPMENU=N DOOR=N TAPCAP= Y BU-P=Y TAPWATER=N DREG=N TANK-H2O=Y TRAY=Y	Remove the dreg drawer	The DREG signal changes from "Y" to "N"	If the signal does not change, check the dreg drawer microswitch and the JP16 wiring.	
erific and		INPUTS TAPMENU=N DOOR=N TAPCAP= Y BU-P=Y TAPWATER=N DREG=Y TANK-H2O=Y TRAY=Y	Open the side door	The DOOR signal changes from "Y" to "N"	If the DOOR signal does not change, check the microswitch of the door and the JP16.	
Functional v microswitches		INPUTS TAPMENU=N DOOR=Y TAPCAP=Y BU-P=N TAPWATER=N DREG=Y TANK-H2O=N TRAY=Y	Remove the brewing unit	The BU-P signal changes from "Y" to "N"	If the BU-P signal does not change, check the unit presence microswitch and the JP14.	
E		INPUTS TAPMENU=N DOOR=Y TAPCAP= Y BU-P=Y TAPWATER=N DREG=Y TANK-H2O=Y TRAY=N	Remove the drip tray	The TRAY signal changes from "Y" to "N"	If the BU-P signal does not change, check the unit presence microswitch and the JP14.	
	~ }	INPUTS TAPMENU=N DOOR=Y TAPCAP= N BU-P=Y TAPWATER=Y DREG=Y TANK-H2O=Y TRAY=Y	Knob in water pos.	TAP-WATER signal from "N" to "Y"	If the	
		INPUTS TAPMENU=N DOOR=Y TAPCAP= Y BU-P=Y TAPWATER=N DREG=Y TANK-H2O=Y TRAY=Y	Knob in coffee pos.	TAP-COFFE signal from "N" to "Y"	TAPWATER, TAPCOFFE, TAPMENU indication does not change, check the knob board and/or the connection wiring with interface board JP2.	
	MENU	INPUTS TAPMENU=Y DOOR=Y TAPCAP= N BU-P=Y TAPWATER=N DREG=Y TANK-H2O=Y TRAY=Y	Knob in MENU pos.	TAP-MENU signal from "N" to "Y"		
		PRESS THE	ON/OFF B	UTTON TO ACCE	SS THE UPPER LEVEL	

SYNTIA CAPPUCCINO

05 TROUBLESHOOTING

lev.	knob pos.	display	button	function	notes	
L3		BU PAGE WORK=Y HOME=N CUR= 0		Initial status, buttons not pressed		
		BU PAGE WORK=Y HOME=N CUR= 178		Bring the unit to the "WORK" position	CUR= corresponds to the motor consumption of the gearmotor and this value must be: WITH THE UNIT DISCONNECTED less than 200mA WITH THE UNIT CONNECTED less than 300 mA	
		BU PAGE WORK=N HOME=N CUR= 497	мемо	changes from g in the gearmoto	ERROR: WORK signal remains "N" and the display colour changes from green to red. Check the gear microswitch in the gearmotor (broken or inserted wrongly) and the motor (blocked). Check the JP16 wiring.	
ification Init	ERROR: (WITH THE UNIT DISCONNECT				nption of the gearmotor is greater than play colour changes from green to red,	
Functional verification Brewing unit		BU PAGE WORK=N HOME=N CUR= 337		ERROR:(WITH THE UNIT CONNECTED) If the current consumption of the gearmotor is greater than 300mA, the display colour changes from green to red, check the unit and/or the gearmotor.		
Funct		BU PAGE WORK=N HOME=Y CUR= 193		Bring the unit to the "HOME" position	CUR= corresponds to the motor consumption of the gearmotor and this value must be: WITH THE UNIT DISCONNECTED less than 200mA WITH THE UNIT CONNECTED less than 300 mA	
		BU PAGE WORK=N HOME=N CUR= 497	497 <u>MEMO</u>	colour changes microswitch of	signal remains "N" and the display from green to red. Check the the gearmotor (broken or inserted he motor (blocked), the JP16 wiring.	
		BU PAGE WORK=N HOME=N CUR= 203		current consum 200mA, the dis	THE UNIT DISCONNECTED) The nption of the gearmotor is greater than play colour changes from green to red, and/or the gearmotor.	
		BU PAGE WORK=N HOME=N CUR= 337		ERROR:(WITH THE UNIT CONNECTED) The current consumption of the gearmotor is greater than 300mA, the display colour changes from green to red, check the unit and/or the gearmotor.		
		PRESS THE	ON/OFF Bl	JTTON TO ACCE	SS THE UPPER LEVEL	

lev.	knob pos.	display	button	function	notes	
L4		EV PUMP EV1 OFF IMP=0 EV2 OFF L/H=0			status, buttons not pressed stopcock in water position.	
		EV PUMP EV1 OFF IMP=142 EV2 OFF L/H=15		the boiler pin a	Ir button for the water to pass through nd the pulse indicator (PULS) will eas the litre/hour (L/H) indicator should and 18.	
tion Pump / EV1 - EV2		EV PUMP EV1 OFF IMP=0 EV2 OFF L/H=0		ERROR: The display colour changes from green to red and the pulses remain at 0, check the pump, flow meter, its wiring and/or the connection on the POWER/ CPU board (JP5), the wiring of the pump and/or the connection on the POWER/CPU board (JP24). If the water does not pass through the boiler pin but through the milk circuit or the safety/drain valve, verify the operation of solenoid valve EV1 or EV2.		
		EV PUMP EV1 ON IMP=238 EV2 OFF L/H=15		EV1 and activat water to come of	sso button to activate the solenoid valve e the pump (flavour button) for the out of the safety/drain valve. The litre/ cator should be between 14 and 18.	
Functional verification Solenoid Valves EV1		EV PUMP EV1 ON IMP=0 EV2 OFF L/H=0	red and the pul meter, its wiring CPU board (JP5 connection on t water does not but through the	splay colour changes from green to ses remain at 0, check the pump, flow g and/or the connection on the POWER/), the wiring of the pump and/or the he POWER/CPU board (JP24). If the pass through the safety/drain valve e milk circuit or the boiler pin, verify the enoid valve EV1 or EV2.		
Ē		EV PUMP EV1 ON IMP=238 EV2 ON L/H=15		valve EV1 and a the water to con	sso button to activate the solenoid activate the pump (flavour button) for me out of the milk circuit. The litre/ cator should be between 14 and 18.	
		EV PUMP EV1 ON IMP=0 EV2 OFF L/H=0		red and the pul flow meter, its v POWER/CPU bo or the connection If the water doe through the safe the operation of	splay colour changes from green to ses remain at 0, check the pump, wiring and/or the connection on the bard (JP5), the wiring of the pump and/ on on the POWER/CPU board (JP24). es not pass through the milk circuit but ety/drain valve or the boiler pin, verify f solenoid valve EV1 or EV2. SS THE UPPER LEVEL	

lev.	knob pos.	display	button	function	notes	
L5		HEATER GRINDER OFF 0 30 0 15		Initia	l status, buttons not pressed.	
		HEATER GRINDER OFF 40 30 15 14		GRINDER MOTOF	that indicates the rotation of the COFFEE R increases up to 40. The other two numbers isplay are not important for the test mode.	
Functional verification coffee grinder - boiler		HEATER GRINDER OFF 0 30 0 15		ERROR: The number remains 0 and the motor of the coffee grinder does not rotate, the display colour changes from green to red, check the sensor and/or the coffee grinder motor, the wiring of the sensor and/or the connection on the POWER/ CPU board (JP2), the wiring of the coffee grinder motor and/ or the connection on the POWER/CPU board (JP8).		
	رزز	HEATER GRINDER ON 40 49 15 14		The current consumption is OK, the HEATER signal changes from "OFF" to "ON" and the temperature value increases.		
	()	HEATER GRINDER OFF 40 159 15 SHORT 14		the temperate the colour of t check the w	ORT" appears in the HEATER signal, ure sensor of the boiler is interrupted, the display changes from green to red, viring of the boiler sensor and/or the the POWER/CPU board (JP13 could be disconnected).	
		HEATER GRINDER OFF 40 71 15 OPEN 14	WEMO	temperature s of the display wiring of the b	EN" appears in the HEATER signal, the sensor of the boiler is open, the colour changes from green to red, check the poiler sensor and/or the connection on PU board (JP13 could be disconnected).	
				temperature val	rrent consumption is NOT OK and the lue does not increase, check the wiring pply and/or the connection on the pard (JP17-3).	

5.2. Error messages

code	brief description	description
01	blocked coffee grinder	the coffee grinder is blocked (jammed grinder blades or sensor is not reading properly)
03	brewing unit blocked in 'work'	descent time-out exceeded
04	brewing unit blocked in 'home'	ascent time-out exceeded
05	blocked water circuit	water does not flow in the flow meter
06	frother unit solenoid valve	short-circuit in a solenoid valve of the frother unit
10	coffee boiler short-circuit	coffee boiler temperature sensor short-circuit
11	coffee boiler in open circuit	coffee boiler temperature sensor in open circuit
12	steam boiler short-circuit	steam boiler temperature sensor short-circuit
13	steam boiler in open circuit	steam boiler temperature sensor in open circuit
14	various temperature errors (in the coffee boiler)	coffee boiler temperatures out of control
15	various temperature errors (in the steam boiler)	steam boiler temperatures out of control
16	coffee unit short-circuit	brewing unit microswitch short-circuit
17	not used	
18	clock error	memory fault or impossible to set
19	no zero crossing	no zero crossing on board, could also be caused by the power board
20	not used	

CHAPTER 6

STANDARD CHECKS

6.1. Repair schedule

	Action
1	Visual inspection (damage during transport)
2	Appliance data check (plate)
3	Functional check / problem analysis
4	Opening the appliance
5	Visual inspection
6	Functional tests
7	Repairing the faults encountered
8	Checking any modifications (view info, new sw, etc.)
9	Service activities in accordance with the operating schedule
10	Internal cleaning
11	Functional test with the appliance open
12	Assembly
13	Final inspection test
14	Draining the circuit (in winter)
15	External cleaning
16	Lubricating the brewing unit with suitable grease
17	Insulation test HG 701 (dielectric)
18	Documentation

6.2. Service schedule

S	Replacement	Ρ	Cleaning
ES	Visual inspection	TR	Noise test
D	Descaling cycle	R	Adjustment
CF	Functional check		

Component	Action	Support/tool
Water filter	P/S/CF	
Water tank lip seal	S/CF	
Boiler pin O-ring	S/CF	
Brewing unit	ES/P/CF	Degreaser / Grease
Pipes, fittings and Oetiker clamps	ES/CF	
Coffee circuit pump	ES/TR/CF	
Hot water/steam circuit pump	ES/TR/CF	
Gearmotor	ES/TR/CF	
Coffee grinder	P/R/CF	Vacuum cleaner / brush
Water circuit	D/CF	Saeco descaler
Frothing valve assembly	ES/S/CF	
2-way solenoid valve	ES/S/CF	
3-way solenoid valve	ES/S/CF	

6.3. Final inspection

Test	Procedure	Support/ tool	Standard	Tolerance
Expresso	2-3 Expressos for adjustment purposes	Measuring beaker	Same amount	15%
Coffee	2-3 Coffees for adjustment purposes	Measuring beaker	Same amount	15%
Noise			Standard	
Amount of cream	Blow into the cup until the cream separates		The cream should come together again completely	
Cream colour			Hazel brown	
Temperature	Reading taken while dispensing	Thermometer	84 °C	±4 °C
Grinding level	Check the grain size of the ground coffee			
Hot water	Dispense water			
Steam	Dispense steam			
Dreg drawer absence indication	Remove the dreg drawer		Dreg drawer absence indication	
No signal coffee beans	Start brewing a coffee with the coffee bean container empty		No signal coffee beans	
DISASSEMBLY

7.1. Outer elements





Disassembly of the upper cover

1) Remove the dreg drawer, water tank, coffee container cover, water drip tray, brewing unit, control knob cover and the cappuccino button (use a screwdriver as a lever).

2) Loosen the screws shown and remove the finger protection mushroom and the coffee container.



3) Loosen the screws shown from inside the compartments that contain the water tank and dreg drawer.

4) Move the upper cover outwards to facilitate the removal of the front panel.



5) Lift the upper cover and disconnect the earth wire shown.



When assembling the appliance cover, be careful not to scratch the keyboard cover.

It is recommended to place a sheet of paper on the keyboard cover (see picture) before repositioning the appliance cover and remove it when assembly is complete.

Side cover

Loosen the screws shown and disconnect the earth wire.









Rear cover Loosen the screws shown.

7.2. Coffee dispenser



1) Loosen the screws shown.

2) Use a screwdriver as a lever to release the front panel support, which facilitates the removal of the dispenser.

- **3)** Remove the fork and the clamp.
- 4/5) Loosen the screws shown.
- 6) Dispenser assembly.

Side door

Lift the door and remove it from the support hinge.



7.3. Coffee grinder adjustment

The grinding machine can be adjusted by the user (only with the grinding machine on) by pressing and turning the knob inside the coffee bean container one notch at a time.



Adjustment implemented by the service centres



To further adjust the grinding machine, the technician can operate directly on the machine by pressing and turning the highlighted ring nut (C). (clockwise + to increase the grain size and anti-clockwise - to decrease it).

If coffee residue is found between the two grinder blades, it is recommended to adjust this by tightening a max of two notches at a time.



Lastly, bring the middle dot of the adjustment knob back to the centre.

7.4. Keyboard Card and Control Knob





1) Loosen the screw shown and remove the cover, glass panel, frame, keyboard and seal.

2) Release the display support and the display.

3) Loosen the screws shown and remove the control knob.

4) Parts.

7.5. Power/CPU Board



1) Loosen the screw shown and remove the board cover.

2) Remove the board by removing all the connections.

7.6 Gearmotor







1) Loosen the screws of the boiler pin, remove it and loosen the others shown.

2) The following are located inside the compartment protected by the casing:

- The electric motor (A) with gears (B) and (C) for transmission and timing of the dispensing unit.
- The dreg drawer presence sensor (D).
- The dispensing unit presence microswitch (E).
- The microswitch (F) that detects the idle phase of the dispensing unit as well as that of the dispensing process.
- Remove the gear (C) that engages with the motor transmission shaft.
- Remove the large gear (B).
- Remove the motor (A) complete with the transmission shaft.

3) Reconnect the gear (B), making sure that the arrow is aligned with the opening that contains the pin (P).

4) When re-mounting the motor and the transmission shaft, make sure the guides (L) are inserted in the correct housing. Grease the shaft thoroughly and evenly.

7.7. Boiler



1) Loosen the screws shown.

4) Loosen the screw and remove the plastic support. Disconnect the pipes and the connections.

7.8. Stopcock



1) Remove the boiler pin by loosening the screws shown.

2/3) Loosen the screws shown.

4) Loosen the screws shown and remove the structure base insert.

5) Loosen the screws shown and remove the water connections and the stopcock.

Pump and flow meter 7.9.

PUMP



from the two supports.

FLOW METER

Remove the connection **1** and the silicone pipes **2**. Loosen the safety valve **3** and remove the pump

> Remove the connection and the silicone pipes and release the flow meter.

7.10. Solenoid valves



2-way solenoid valve Remove all electrical and water connections.

3-way solenoid valve Loosen the screw shown and remove the electrical and water connections.

Saeco International Group

7.11 Coffee grinder



1) To remove the coffee grinder, simply slide it out and remove the connections.

2) When reassembling it, make sure the spring (A) and the coffee duct (B) are repositioned correctly.

7.12. Adjusting/removing and installing the grinder blades



1) To remove the upper grinder blade support, use an Allen wrench and turn it clockwise to release it from the bayonet coupling.

2) To remove the grinder blade from the upper support, turn it anti-clockwise until it is released from the bayonet coupling.



3) To remove the lower grinder blade, block the increment pin (A) in place and turn the grinder blade anti-clockwise until it is released from the bayonet coupling.

4) When refitting the upper grinder blade support, make sure it is placed as shown in the picture, with the highlighted mark in the same position.

7.13. Un/installing Oetiker clamps



1) Boiler connection

2) Other connections



Use a suitable pair of pliers to remove the clamp (as shown).



Tighten the clamp as shown in the pictures.

NOTES

WATER CIRCUIT DIAGRAM



ELECTRICAL DIAGRAM

