WITTENBORG

TECHNICAL INFORMATION

TYPE NO	TYPE	T.I.-NO
ES5100	**Espresso Brewer**	**ES 01/00**

SERIAL NUMBERS AFFECTED	ISSUED BY
From machine No 485427	**Documentation/ Wittenborg Odense**

SUBJECT	ISSUED FOR (X):	
New EPROM for ES5100	Action	x
	Information	x

COMPONENTS CONCERNED

Omitted: **48001504 EPROM**

New: **48001505 EPROM**

MODIFICATION:

- EPROM 48001504 - still used in FB and IN models - will be replaced by EPROM 48001505.

REASON:

- Energy save function and calculating amount of cold water for IN products, using cold water injection have been corrected. Error handling routines have been updated.

CONTACT PERSON:

- Kim Dalgaard Andersen

31.05.00	31.05.00
DATE : PRODUCED BY :	DATE : CHECKED BY :

Dear Sir

We have released new software for ES5100. The release includes a new version of the following program(s):

Program Type	Version	Check Sum
VMC-5100	ES400180	5418

If the release includes more than one program type, all the program types in the release must be replaced when replacing programs in installed machines.

The below procedure must be followed when making copies.

1. The check sum of the master E-prom must be checked before copies are made.

2. For each set of copies which is programmed at a time, the check sum for at least one of the copies must be checked.

Compared with the earlier version, the following changes have been made:

Changes to the software

Cold water injection

In the previous version the amount of cold water for IN products, using cold water injection was not correctly calculated. This would lead to too low temperatures for IN products. This has now been corrected.

The guidelines for setting the IN temperatures:

Cold water injection setting (amount of cold water added to the hot water dispensing)	App. Temperature in the mixing bowls	Best for:
LOW	82-87 °C	IN coffee
MEDIUM	78-82 °C	Tea water
HIGH	75-80 °C	Chocolate, whitener
OFF	>85 °C	None temperature unpredictable, but the hottest possible.

NOTE! These temperatures are guidelines and not guarantied. They may change slightly as scaling grows within the tank.

Energy save

The energy save function has been corrected; it was not working properly in previous version.

Error handling

Generally all error-handling routines have been updated and tuned to give the machine the optimal safety performance. In the previous version several “false” error conditions were generated.

All error messages known from the IN and FB 5100 are valid to the ES machine.

The new error messages for the ES 5100 are

Error	Description
Temp too high	Due to an error condition, the tank temperature has been >120 °C
No water flow	The water flow has been < 1 ml./sec. This may be caused by a blocked ES brewer or a defective valve not able to open
Grinder error	The current limit of the grinder has been exceeded. This can be caused by a blocked grinder or a defective motor.

General information on the heater control algorithm

Due to an advanced energy controlled technology, the boiler temperature will continuously change in order to adapt the use of the machine. This assures a very accurate brew temperature of 90 C in the centre of coffee cake. The instant water temperature can be set in 3 temperature ranges by adjusting the amount of cold water injection (see the above description). Therefore the setting of a boiler temperature is not an issue on this machine. By means on a VIDTS record, a complete set of parameters can be changed in order to achieve a different brew temperature, if required. Changes to these parameters requires an in depth knowledge of the algorithm and the heat/energy physics. Changes to these parameters must always be confirmed and tested by Tech. Ops. at Wittenborg.

The water tank temperature control algorithm is self-calibrating. It will automaticautomatically compensate for fluctuations of the main power supply voltage and inlet water temperatures. By sudden and big fluctuations 1-2 beverages too cold or too hot may be expected, but the machine quickly recovers from this condition by it self. Supply voltage fluctuations of 30-50 V and Inlet water temperature fluctuations of 10-20 C° is considered BIG fluctuations. Fluctuations below these limits should give no problems.

By installing a new machine correct temperatures can be expected after 30-45 minutes and 10 to 20 dispensed beverages.

Yours sincerely
Wittenborg A/S

Kim Dalgaard Andersen

Corrections to Chapter 14

Programming - service settings

of Service Manual for

5100

Quantities option

This option is used to set the options of a drink - i.e. water and ingredients, to set topstop time in connection with FBor ES drinks, cold water injection in connection with IN drinks in ES-machines, beep delay, and finally to test the selected drink.

Note: All drinks do not necessarily include all options.

Note: This option is only functioning if the machine is ready for a vend, i.e. no errors in dispensing or payment have occurred since the machine was put into service mode.

The ingredient quantities can be defined as follows:

Ingredients	0.1 - 99.9 g
Water	1 - 999 ml
Whipper	0.1 - 99.9 sec

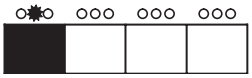
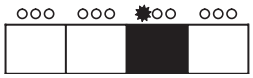
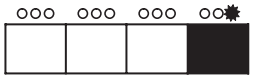
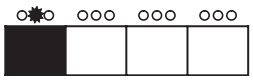
Note: If very large water quantities are defined, then the dispensed water volume may be less than the defined water quantity. This is because the water pressure (flow) is lowered, while the water level in the water tank is getting lower.

Setting quantities (**FB/IN-Machines only**)

Quantities
->

Step	Action	Function
1.	Press: 	The display reads "Press Selection".
2.	Press the selection button of the drink, for which the ingredients are to be set.	The display reads first component.
3.	From the above menu you have the following options:	

If you want to select	then go to step
to select a specific drinks option	4
to enter the specific drinks option:	5
decrease the quantity or value	6
increase the quantity or value or in "Test drink" to activate the test.	7
return to the Quantities option.	8
access the next function	9 and 10

Step	Action	Function
4.	Press: 	Toggles between the various options for the drink • Powder • Water • Whipper • Beep Delay • Test Drink in succession.
5.	Press: 	Enters the specific ingredient options: • from "FBcoffee" into Topstop time • from "FBwater" into Topstop time **Note** : Topstop is not applicable to Instant drinks.
6.	Press: 	Decreases the quantity or value (ingredient/topstop time).
7.	Press: 	Increases the quantity or value (ingredient/topstop time), or dispenses the drink in question in the "Test Drink" option.
8.	In step 4 toggle to "test drink", then press: 	Returns to the Quanties option.
9.	Repeat steps 1-7 until components of relevant drinks have been adjusted/set.	
10.	Press: 	Accesses the next function "Boiler".

Cold water injection (**ES machines only**)

This option is used to set the amount of cold water for IN products, using cold water injection. (**ES machines only**).

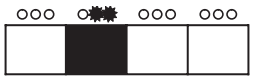
The settings options are as follows

Cold water injection setting (amount of cold water added to the hot water dispensing)	**Approximate temperature in mixing bowl**	**Best suited for:**
HIGH	75°C - 80°C	Chocolate, whitener
MEDIUM	78°C - 82°C	Tea water
LOW	82°C - 87°C	IN coffee
0FF	>85°C	None (Temperature is unpredictable, but the

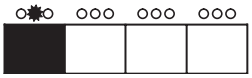
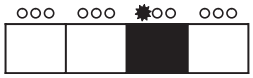
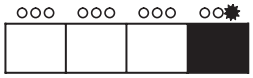
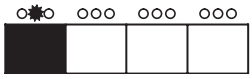
NOTE: These temperatures settings are only intended as a guide; they may change slightly as scaling grows inside the tank.

Setting quantities (**ES-machines only**)

Quantities ->

Step	**Action**	**Function**
1.	Press: 	The display reads "Press Selection".
2.	Press the selection button of the drink, for which the ingredients are to be set.	The display reads first component.
3.	From the above menu you have the following options:	

If you want	**then go to step**
to select a specific drinks option	4
to enter the specific drinks option:	5
• to decrease the quantity or value • to toggle between the options in cold water injection	6
• to increase the quantity or value • to toggle between the options in cold water injection, or • in "Test drink" to activate the test.	7
to return to the Quantities option.	8
to access the next function	9 and 10

Step	Action	Function
4.	Press: 	Toggles between the various options for the drink • Powder • Water • Mixer • Beep Delay • Test Drink in succession.
5.	Press: 	Enters the specific ingredient options: • from "EScoffee" into Topstop time • from "ESwater" into Topstop time • from "INwater" into cold water injection in succession. **Note** : Topstop time is not applicable to Instant drinks. Cold water injection is only applicable to Instant drinks.
6.	Press: 	• Decreases the quantity or value (ingredient/topstop time), or • toggles between the options (cold water injection).
7.	Press: 	• Increases the quantity or value (ingredient/top stop time) • toggles between the options (cold water injection), or • dispenses the drink in question in the "Test Drink" option.
8.	In step 4 toggle to "test drink", then press: 	Returns to the Quanties option.
9.	Repeat steps 1-7 until components of relevant drinks have been adjusted/set.	
10.	Press: 	Accesses the next function "Boiler".

Boiler Setting Option

The Boiler setting option is used to set the various functions of the water tank, i.e. nominal temperature, temperature lock, temperature unlock and energy saving temperature.

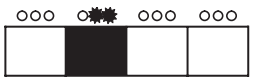
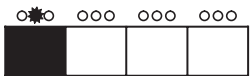
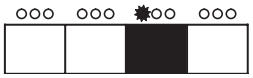
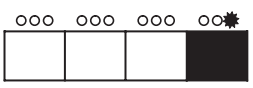
Note: "Boiler setting option" is not possible in ES-machines.

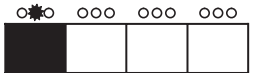
Default temperatures

The default temperatures are as follows:
FB: 94°
IN: 80°
ES: 96°
The above temperatures are recommended.

Setting boiler **(FB/IN-Machines only)**

Boiler
->

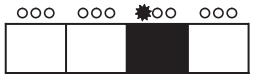
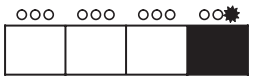
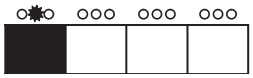
Step	Action	Function
1.	Press: 	Activates the Boiler setting option. (The first field shown is nominal temperature setting).
2.	From the above menu you have the following options: **If you want to** / **then go to step** select one of the functions of the water tank → 3 decrease the temperature → 4 increase the temperature → 5 return to the boiler option → 6 access the next function → 6-7	
3.	Press: 	Toggles between the functions • "nominal temperature", • "temperature lock", • "unlock temperature", and "energy save temperature" (65°)
4.	Press: 	Decreases the temperature.
5.	Press: 	Increases the temperature.

Step	Action	Function
6.	Press:	Returns to the Boiler setting option.
7.	Press: 	Accesses the next function "Cup sensor Status".

Setting cup sensor

Cup sensor
Status : ON

This option is used to set the Cup Sensor to ON or OFF.

Step	Action	Function
1.	Press:	Activates the Cup Sensor setting option.
2.	Press: 	Turns the status to "off".
3.	Press: 	Turns the status to "on".
4.	Press:	Returns to the Cup Sensor Status.
5.	Press: 	Accesses the next function "Setting payment" .

New Chapter

"Faults"

to be inserted after chapter 16

of Service Manual for

5100

Faults

Fault Diagnosis

The list of possible faults and the appropriate trouble shooting is divided into two main groups:

- Faults which are not indicated in Display

- Faults which are indicated as messages in Display

Errors not indicated in Display

Fault	Possible cause	Remedy
No function, no display	• Main switch defective	• Check the main switch, replace it if necessary
	• Power supply interrupted	• Check the power supply • Check the fuse in the power supply unit, replace it if necessary • Check the power supply cable, replace it if necessary
	• Cable harness defective	• Replace the cable harness
	• Electronic control defective	• Replace the electronic control
	• Plug contact fault	• Check contacts, replace if necessary
	• Fuse defective	• Check the power supply, replace the fuse if necessary
Noise from the brewer	• Brewer tacho defective	• Check the brewer tacho, replace it if necessary
	• Contact fault	• Check the contacts (check cable harness for conductivity)
	• Cable harness defective	• Check the cable harness, replace it if necessary
	• Mechanical defect	• Check actuator, replace it if necessary
Drinks too cold	• Water supply too cold	• Raise temperature
	• Temperature sensor is maladjusted	• Check and adjust temperature setting.

Error messages in Display

Fault	Possible cause	Remedy
Door open !	• Door not closed properly	• Close door properly
	• Door switch defective	• Check, replace if necessary
	• Door harness defective	• Check, replace if necessary
Insert cup	• No cup located on cup platform	• Place cup on cup platform
	• Defective cup sensor	• Check, replace if necessary

Fault	Possible cause	Remedy
Water l. low	• Water tank is not filled within 3 minutes • Inlet valve defective • Blocked water filter • Water supply connection blocked	• Switch machine off, open water cock, check water connection and hoses • Check, replace if necessary • Remove impurities and clean / replace, if necessary. • Remove impurities.
Temp. low	• Water temperature is too low • Heating element defective • Harness for heating element defective • Machine has just been switched on • Harness for temperature sensor defective	• Wait until the water is heated sufficiently (approximately 15 minutes) • Check the heating element, replace it if necessary. Check harnes, replace if necessary. • The display is automatically cleared when the water in the tank reaches the correct temperature. • Check, replace if necessary.
Heater error (IN, FB only	• Over boil thermostat has triggered • Over boil thermostat is defective • Harnes for overboil thermostat is defective • Temperature sensor is defective • Harness for temperature sensor defective	• Press the reset button • Check the boil over switch, replace it if necessary • Check, replace it if necessary • Check, replace it if necessary • Check, replace it if necessary.
Energy save	• Energy save period is on	• Change energy save period • Check the clock, make sure that the time is correct.
Bucket full	• Drip tray full • Drip tray sensor defective • Harnes for drip tray sensor defective • Leak in machine • Waste bucket full • Waste bucket sensor defective • Harness for waste bucket sensor defective	• Switch machine off, empty drip tray and dry the water level sensor • Check, replace it if necessary • Check, replace it if necessary • Check and repair it • Switch machine off, empty waste bucket and dry the sensor • Check , replace it if necessary • Check, replace it if necessary
Brewer error	• Brewer blockage • Brewer defective • Brewer motor defective • Harnes for brewer motor defective • Defective harnes between MC and switches • Micro switches maladjusted	• Empty waste bucket • Switch machine off/on • Check brewer and brewer connections, adjust, repair or replace defective part if necessary.

Fault	Possible cause	Remedy
FB assembly	• Filter plate or cylinder mounted incorrectly • Brewer motor defective • Harnes for brewer motor defective • Defective harnes between MC and switches • Micro switches maladjusted	• Mount filter plate and brewer cylinder correctly • Check brewer and brewer connections, adjust, repair or replace defective part if necessary.
Filterplate!	• Filter plate blocked up • Defective brewer motor	• Clean/decalcify filter • Switch machine off/on • Check brewer motor, replace if necessary.
Exact change	• Coin tubes of coin mechanism are empty • Coin return switch defective or incorrectly adjusted	• Fill Coin tubes • Check, adjust or replace it if necessary
Valve leak!	• Leaky valve • Leak in water tank	• Switch machine off/on • Check valves, replace if neccessary. • Check and repair it.
UnknownError	• Unknown error	• Switch machine off/on
Internal err	• Internal error	• Switch machine off/on
GrinderError (ES only)	• The grinder is blocked by a foreign body, e.g. stone • Grinder motor is damaged • Harness for grinder motor defective	• Clean grinder • Check grinder motor, replace if necessary • Check, replace it if necessary
HighTemp.! (ES only)	• Due to an error condition, the water temperature in the tank has been >120°C. • Temperature Sensor defective • Harness for temperature sensor defective	• Check boil over thermostat, replace if necessary • Check, replace it if necessary • Chec,k replace it if necessary
No flow!	• Grinder setting is too fine • Water pump damaged • Outlet valve defective • Harness for outlet valve defective • Break tank has no water	• Set grinder to a coarser grind • Check pump, replace if necessary • Check replace it if necessary • Check replace it if necessary • Check electrodes to break tank, switch connections/replace if necessary
Sold out	• Minimum level, set in “canister facility” has been reached.	• Refill canisters • Check and readjust if brand or type of ingredient in question has been changed, cf. Service mode - service settings, Caniser setting facility.

Fault	Possible cause	Remedy
Rinse now!	• If set, the rinse message facility has reacted to the relevant setting	• Change setting • Perform cleaning/rinse in accordance with instruction to “remedy” the rinse message facility, cf. Service settings - Service rinse message setting facility.