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WMF 5000S

Service manual

KMT Technical Support

Revision: 03/2015

Rev. 01

Preface

This **service manual** contains the most important information that is relevant to typical service and maintenance activities.

If significant changes are made, then this document, along with the referenced attachments and related documents, will be updated and provided to registered users for download in the service center.

Attachments.

- WMF Dynamic Milk Setting instructions milk and foam
- WMF 5000S setting instructions milk and foam, Easy Milk
- WMF 5000S Software description part 1
- WMF 5000S Software description part 2
- WMF 5000S event and error list

Applicable documents

Customer documents

- Planning information
- User manual

Technician documents

- Piping schematics
- Electrical schematics
- Wiring schematics
- Spare parts lists
- Technical circulars

Technical service instructions:

These documents are subject to change. Please try to keep these documents up-to-date.

Planned contents which is awaiting implementation/remains unavailable appears in italics in the document.

Further detailed information are distributed in paper form as part of the face-to-face training sessions; however, they are not available for download unencumbered.

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Change history

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Rev. 01	• 1st edition for series launch
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1 Installation and commissioning

1.1 Customers on-site connection requirements

Necessary preparatory work for electricity, water and drainage connections at the customer's premises are to be arranged by the machine owner/operator.

The work must be carried out by authorised installation technicians in compliance with general, country-specific and local regulations.

The WMF Service engineers may only connect the coffee machine to existing prepared connection points.

WMF Service is neither authorised nor responsible for carrying out any work on-site prior to connection.

For details, see the planning information on the website www.wmf-kafeemaschinen.de

1.2 Hardware connection and preparatory work

1.2.1 General tasks

- Place the coffee machine horizontally on the counter (breadth and depth); adjust feet where adjustable
- Connect the water infeed
- Water filter needed? If yes– connect (for details, see the following chapter)
- Connect the drain – use angle 33 2165 8000 from horizontal to vertical!
- All drains must be sloped.
- Connect to the power supply
- Switch on the coffee machine

1.2.2 Recommended water filter

A WMF water filter is recommended for carbonate hardness above 5 °dKH.

For the WMF 5000S, the –bestmax XL– water filter is recommended in the standard price list.

After measuring the carbonate hardness with a test kit - which is within the sell-by date - cut to size according to the capacity table (see the User manual which comes with the filter).

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1.3 Initial start-up with the aid of the technical information

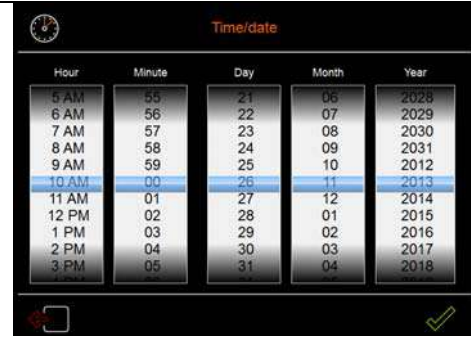
1.3.1 Goal of the technician information

- A guided implementation of mandatory basic settings.
- As simple a start-up of the coffee machine as possible with a high-quality beverage quality.

The aim is not to cover all setting options.

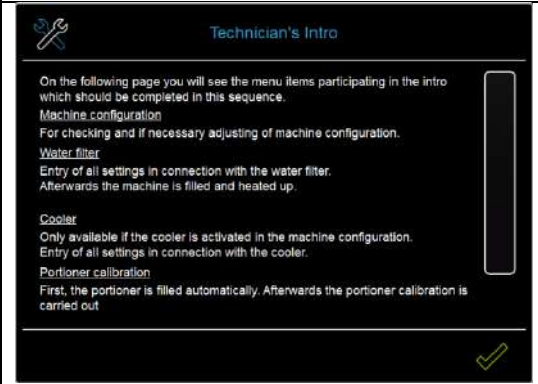
If for example the settings stored as defaults are changed in the "Operating options" menu or if the position of beverage cups is changed, filling quantities are to be changed, this must take place after the intro has concluded.

1.3.2 Workflow, technician info:

	Set and where necessary change the language
	Adjust time and date where necessary

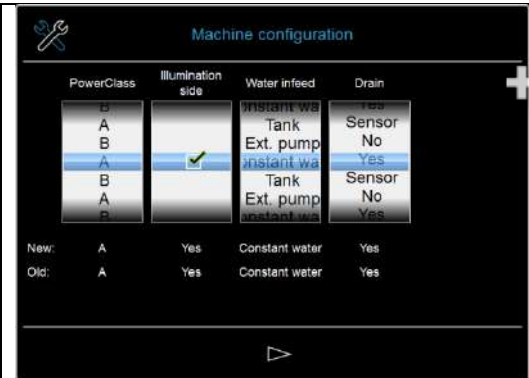
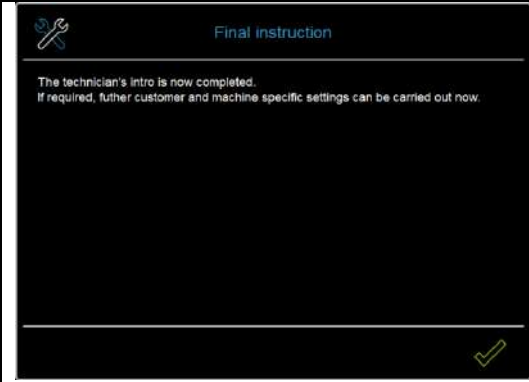
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	The prompt appears asking whether to carry out start-up or not When "Yes": Next step If "Yes": Machine is filled then heat and is then ready for use
	Enter the technician PIN (Since some access to service menus is provided as part of the technician intro; it is used to ensure that only technicians use the start-up intro.)
	A pure info text page follows In this way, the setting steps to be performed are explained in detail.

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 The screenshot shows the 'Machine configuration' screen with a wrench icon. It contains four columns: PowerClass, Illumination side, Water infeed, and Drain. Each column has a list of options with checkboxes. Below the lists, there are 'New:' and 'Old:' rows. A right arrow is at the bottom.	Adjust the machine configuration if necessary After processing and confirmation, a restart will be required.
 The screenshot shows the 'Technician's Intro' screen with a wrench icon. It lists four items: Water filter, Cooler, Portioner calibration, and Milk and foam, each with a checkbox. A green checkmark is at the bottom right.	The menu items are intended – as they partly build on top of each another- to be processed from top to bottom (The cooler is only present when it was previously selected in the machine options) Menu items which were run through and processed are marked with a check. The OK button appears once all menu items have been processed.
 The screenshot shows the 'Final instruction' screen with a wrench icon. It contains text: 'The technician's intro is now completed. If required, further customer and machine specific settings can be carried out now.' A green checkmark is at the bottom right.	A concluding info text page appears

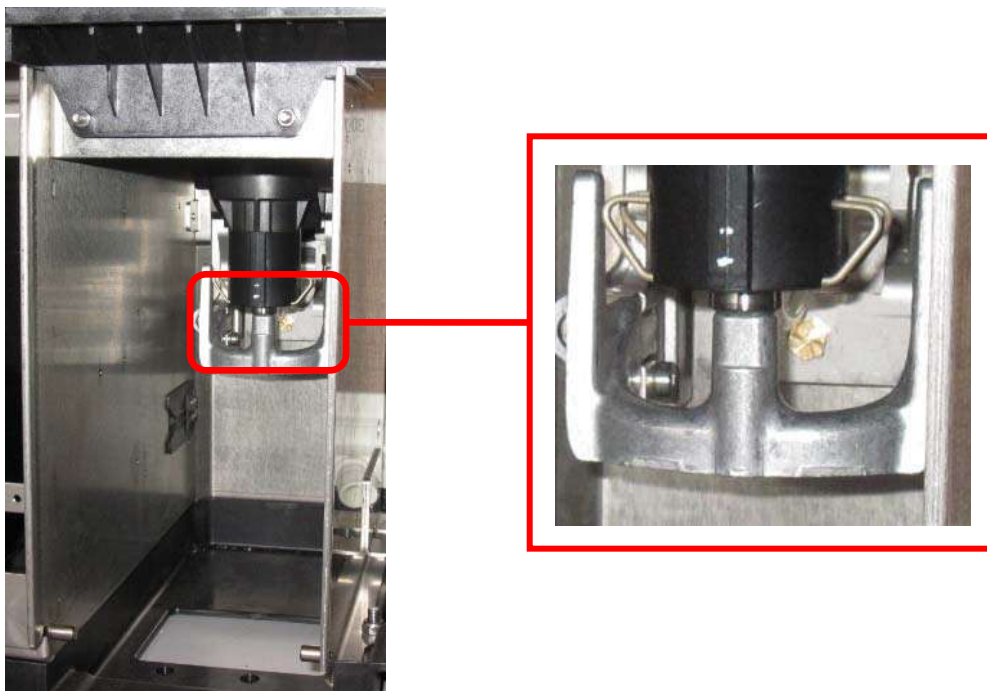
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2 Service

2.1 Brewer

The technician can install and remove the brewer with a few basic hand maneuvers.



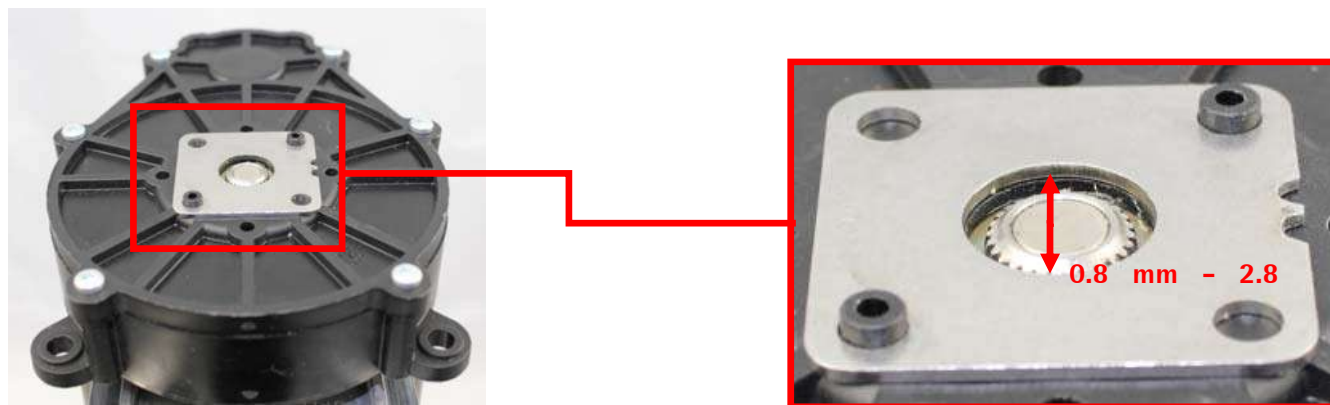
1. Remove grounds container, drip tray
2. Unscrew the safety screw from the unlocking lever
3. Pull the unlock lever at the brewer and remove the brewer by moving it out towards the front

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2.2 Distance between angle sensor and brewer spindle (magnet)

The "Brewer in place" status is detected by the angle sensor, which receives a signal from the magnet installed at the upper end of the brewer spindle. The distance between the angle sensor and the magnet on the brewer spindle must be between 0.8 and 2.8 mm.



This distance is checked during commissioning in the factory. If it is too low, then spacers are installed to compensate for component tolerances. Most machines have one spacer installed.

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Checking the distance:

- Unscrew the angle sensors.
Leave the installed state as it is (with or without spacers).
- Check the distance with the inspection gage 33 2695 5000
- If the distance is greater than 2.8 mm then remove spacers
- If the distance is less than 0.8 mm then install spacers. One set of spacers, consisting of 2 spacers of 0.5 mm and 1 mm thickness, is available for adjusting the brewer sensor relative to the brewer magnet. It is item number 33 2908 1000.



Technical service instructions:

If the distance is OK, the angle sensor may be defective. In this case, please replace it.

If the brewer motor is replaced, the replacement brewer motor comes with one set of spacers.

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2.3 Espresso pump

The WMF 5000S has a balanced espresso pump installed.

Unlike standard espresso pumps, this espresso pump regulates to 7.5 bar over the atmospheric pressure – irrespective of the pump input pressure (= line pressure).

Technical service instructions:

- In the event that this espresso pump requires readjusting, this can be done without opening the machine.
The set screw for the espresso pump is accessible in its position above the brewer shaft.



Technical service instructions/customer instructions

- The espresso pump is NOT self-priming.
- Risk of damage to the espresso pump when running empty.
- The coffee machine must therefore have an upstream pressure on the line side of 0.2 bar. This means:
 - Under no circumstances must the coffee machine be operated with a tank which does not have a supply pump between it and the machine.

2.4 Pressure reducer setting

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The pressure gage can be used to check and adjust the output pressure of the pressure reducer. The auxiliary nipple is screwed in at the descaling connection and connected to the pressure gage

Check the pressure reducer setting:

- Start the Service routine "Set pressure reducer"
- Remove the descaler coupling and install the auxiliary nipple with the pressure gage.
- Start the service routine and where applicable, set the pressure reducer to 1.8 bar
- End the service routine, remove the test fitting and reinstall the descaler coupling

Test tool comprising:

Pressure gage 3327300000

Auxiliary nipple 3323208000

O-ring 3303985000

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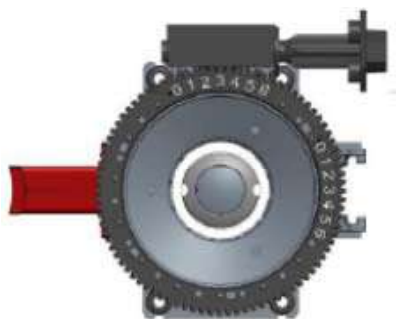
2.5 Grinders



Right grinder

The grinder right (33 7006 4704) is pre-set to grinding number 1 espresso grinding.

This corresponds to a discharge rate of about 2.2 g/s, and a grain size distribution of about 470 μm



Left and center grinder

The grinder middle and left (33 7006 4703) is pre-set to grinding number 5 Creme grinding.

This corresponds to a discharge rate of 2.6 g/s and a grain size distribution of approx. 640 μm

2.5.1 Grinder – grinding degree setting

1. The setting is made on the grinder when it is completely empty.
2. Grinder with assembled sprocket without shaft bearings and worm shaft; the grinder is not attached to the motor.
3. The disks are turned towards each other until they sit tight to each other and can no longer be rotated around the driveshaft by hand.
4. The shaft bearing with worm shaft is assembled.
5. On the shaft bearing, turn 10 turns (a 360°), this corresponds to grinding number 1– espresso grinding
On the shaft bearing, turn 18 turns (a 360°), this corresponds to grinding number 5 – creme grinding
6. Re-adjust the grinding degree if necessary

2.6 Power stage

All inputs and outputs are located on the power stage.

The power stage is protected from surge currents and short circuit by four current sensors and a current detector.

The outputs for controlling the brewer motor are non-locking.

This means that these outputs are normally protected. The outputs could only sustain damage in the case of a direct open-circuit.

All other outputs are short circuit-resistant. The outputs are not damaged even in the event of open circuit

2.7 Front panel

The following components are integrated in the front panel:

- Controller
- Display
- Sensor Glass / Touch
- Micro-SD Card
- Ethernet connection
- USB connection

The micro-SD card stores all data.

- With a software update, the new machine software and operating system software are stored on the Micro-SD card
- A complete data back-up takes place daily, after the cleaning program. Device settings, counter states, maintenance data secured.

When replacing the front panel, the micro-SD card can be used as a backup

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2.8 Power supply

The same power supply is used on the WMF 5000S as for the WMF 1500S.

The power supply converts an unstabilized input voltage into a stabilized DC voltage.

The power supply can be provided with a 115 V (with a jumper on J5) and a 230 V input voltage and delivers 5 V, 24, and 30 V output voltages

Once the machine is switched on using an On switch, the outgoing invoices are made available by the power supply.



J5- Connect the jumper with an input voltage of 115V

In the event of an error, e.g. a surge current or short circuit, the power supply switches off.

->If the power supply detects more than one error, this can only be reset by disconnecting the machine from the mains for 5 minutes.

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2.9 Ventilation system

The WMF 5000S requires 2 different fans



Fan, power stage:

A powerful (1.68 W) fan ensures a low ambient temperature of the power stage.

This fan pumps the air into the inside of the machine from the rear cover to the power stage. From here, the air is sent out again via the discharge.

At the same time, this prevents steam from reaching the power stage via the discharge

Instructions:

The service life of the power stage is reduced by high ambient temperatures. For example, when using a low-power or a fault fan.



Machine suction

The "quiet fan" (0.74 W) diverts residual moisture from the brewing chamber (coffee grounds) or chocolate area via the rear cover

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2.10 Power class

On previous machines there was the "Heater output" setting parameter in the machine data

For the 5000 S this Parameter has been replaced with "Power Class".

The "Power Class" considers both the country-specific heat output versions of the machine, and the current breaker on the mains supply side.

It therefore serves to optimally utilize the machine functionality and to provide appropriate overload protection.

The Power Class determines the following:

Mutual lockout and enabling of components such as the grinder and heater

Lockout and enabling of parallel product dispensing(ensures optimal utilization of steam pressure and thus of dispensing temperatures).

Heating and reheating thresholds based on heat output

Please note:

The Power Class determines the country-specific breakers specific to heat output.

Therefore, the software-adjustable Power Class MUST always match the rating plate indication.

If this is not adhered to, then errors specific to the heating time, for example, or undesired deviations (milk foam / temperatures) in the beverages can occur.

The "Power Class" that applies to a machine is on the rating plate in new machines.

Type	VAR	Ausf.	Herst.-Nr.	Herst. Jahr
03.1900	5100	PR	00019	06.2013
1/N/PE ~		50/60 Hz	220-240 V	2.75-3.25 kW
Heißwassererzeuger				power class (A)
Bemessungsdruck, max.zulässige max.statistischer				
Wasserinhalt entspr.max.zul.Druck Temperatur Wasserdruck				
0,8 l	1,6 MPa (16 bar)		205 °C	0,6 MPa
1,2 l	0,5 MPa (5 bar)		159 °C	(6bar)
WMF AG		Made in Germany		
Eberhardstraße				
D-73312 Geislingen				
Designation Commercial Coffee Machine				

power class (A)

After replacing the operating panel or when deleting the default values for the first time, the Power Class can be read off the nameplate and logged

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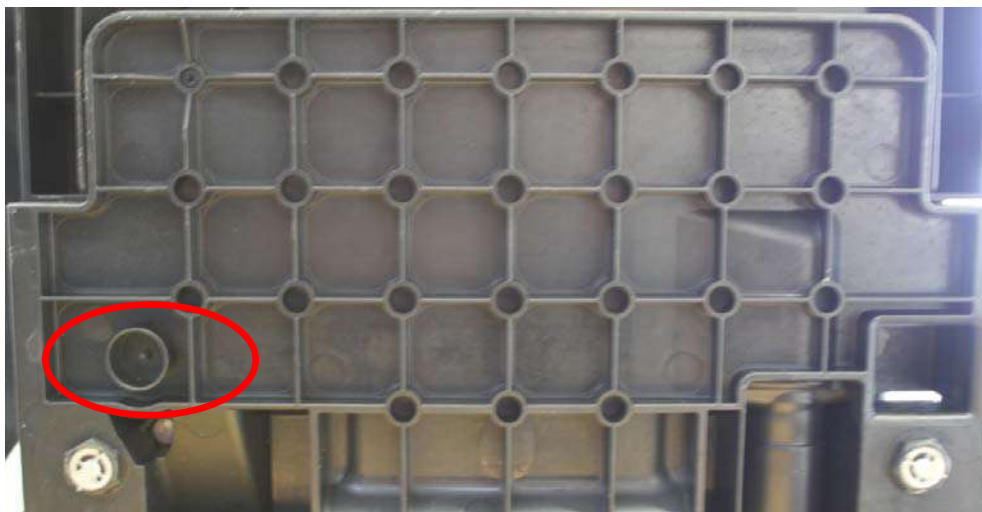
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2.11 Execution of under-machine cooler /under-counter cooler

Generally, machines can be ordered ex works with feed through for underframe/under-counter cooler.

This can also subsequently be made in the field. Only the feed through must be drilled through the machine floor.

A drilling aid is attached to the underside of the machine floor. The hole diameter for the hose feed through is 18 mm.



The illustration shows the drilling aid on the underside of the machine floor

3 Maintenance concept

3.1 Overview of maintenance activities

The following WMF maintenance concept based on time-/serving-dependent cycles, describes the minimum scope of maintenance activities as recommended by WMF. Please also take into account the special terms arising from the service agreements and local factors (which may make earlier descaling of the flow heater necessary).

Maintenance activity	Abbreviation Maintenance package	Maintenance cycle	Easy Milk	Dynamic Milk
Care kit	CK	after 30,000 brewing cycles or 1x year	33 2919 4000	33 2919 7000
Service maintenance 1	SM 1 incl. CK	after 60,000 brewing cycles	33 2919 5000	33 2919 8000
Service maintenance 2 1)	SM 2	every 2 years	33 2919 6000	33 2919 9000
Extended steam boiler and boiler inspection	-	every 2 years	-	
Maintenance set Choc/Topping	SM Choc	after 6,000 mixer cycles	33 2889 1000*	
Maintenance set milk pump	SM milk pump	after 240,000 milk pump cycles	33 2887 9000	-
Descaling	-	Due date: without water filter > after setting the degree of hardness with water filter > 1 x annually	2 bottles of WMF liquid descaling agent 33 7006 2869	

1) A valve - 3340814200- is required for each of the Jet/ Choc and SteamJet options; for the Auto or Easy Steam option, an additional valve - 3326941000- must be installed during service maintenance 2.

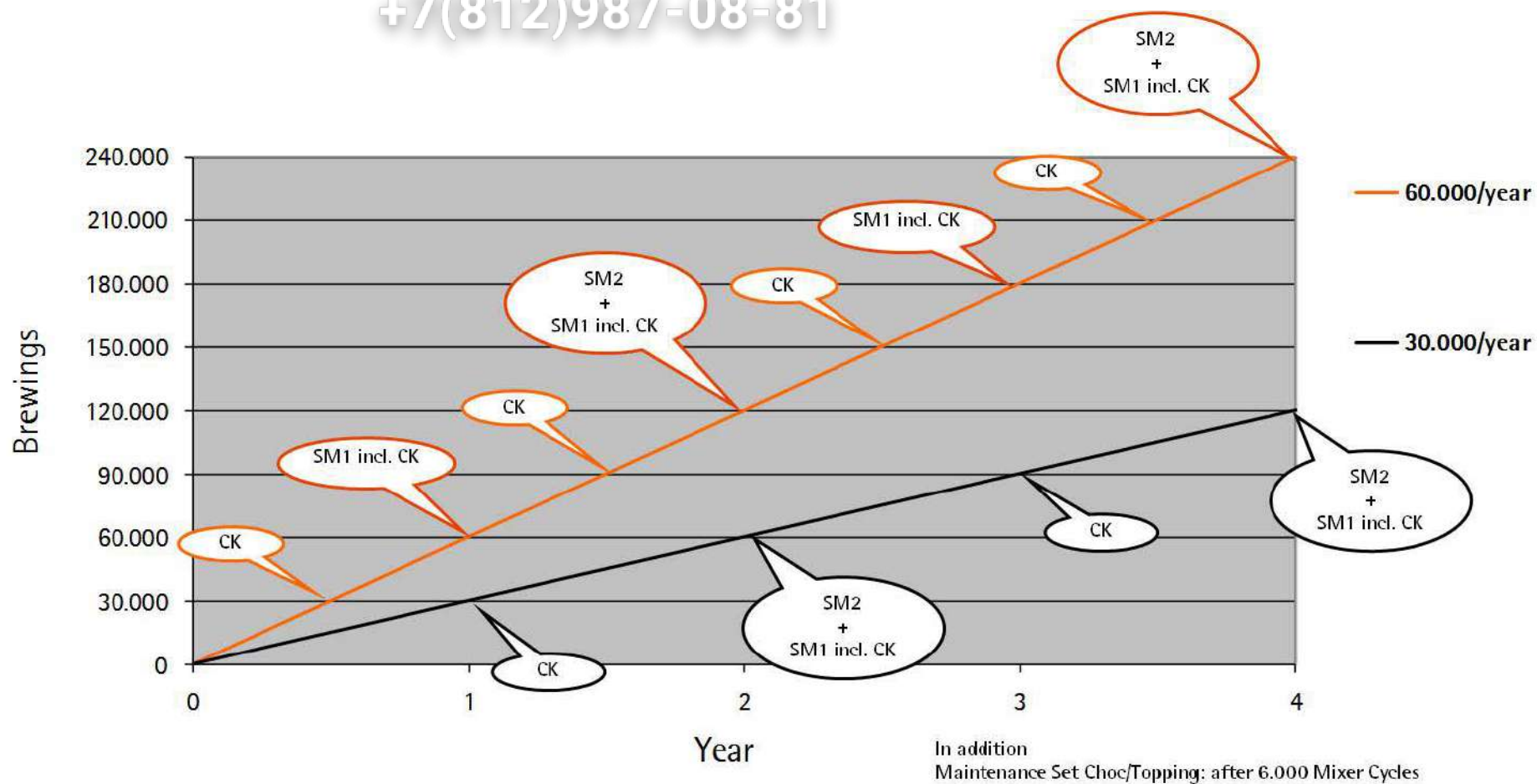
In addition, an extended inspection of the boiler and steam boiler MUST also be made for technical safety reasons as part of service maintenance 2 (analogue to the presto family).

* For details on the contents of the maintenance packages please see the following pages

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3.2 Installation of maintenance packages required for different brewing times

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4 Care kit after 30,000 brewing cycles or 1 x annually**4.1 Care kit – Easy Milk / Dynamic Milk****Easy Milk****Care kit 33 2919 4000**

No.	Designation	Order number	Number
Spout			
1	Milk foamer duplicate	3328675300	1
2	Silicone hose 100cm	0000484948	100 cm
3	Plug&Clean adapter	3324275000	1
Brewer			
4	O-ring porta filter, top	3370060893	1
Choc/Topping			
5	Helical tube 25cm	0000480300	25 cm
Hot water spout			
6	Aerator	3340252000	1
Steamer			
7	O-ring	3303953000	1

Dynamic Milk**Care kit 33 2919 7000**

No.	Designation	Order number	Number
Spout			
1	Silicone hose 100cm	0000484948	100 cm
2	Plug&Clean adapter	3324275000	1
3	Spout with hose connection to blender	3329190000	1
Blender			
4	Lid for blender with bearing(s) and O-ring	3340064000	1
5	Bearings	3340066000	1
Brewer			
6	O-ring porta filter, top	3370060893	1
Choc/Topping			
7	Helical tube 25cm	0000480300	25 cm
Hot water spout			
8	Aerator	3340252000	1
Steamer			
9	O-ring	3303953000	1

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5 Service maintenance 1 every 60,000 brewing cycles**5.1 Service maintenance 1 - Easy Milk / Dynamic Milk****Easy Milk**

Maintenance set 33 2919 5000

No.	Designation	Order number	Number
Brewer			
1	Lower piston complete	33 7006 0891	1
2	Hydraulic connection	33 7006 0992	1
3	Glide	33 7006 0877	2
4	Spindle nut	33 7006 0927	1
5	O-Ring coffee transfer	33 0398 4000	1
6	Portafilter, top, complete	33 7006 0898	1
Steamer			
7	O-ring	33.0395.3000	1
Care kit			
8	Care kit	33 2919 7000	1

Dynamic Milk

Maintenance set 33 2919 8000

No.	Designation	Order number	Number
Brewer			
1	Lower piston complete	33 7006 0891	1
2	Hydraulic connection	33 7006 0992	1
3	Glide	33 7006 0877	2
4	Spindle nut	33 7006 0927	1
5	O-Ring coffee transfer	33 0398 4000	1
6	Portafilter, top, complete	33 7006 0898	1
Steamer			
7	O-ring	33.0395.3000	1
Care kit			
8	Care kit	33 2919 7000	1

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6 Service Maintenance 2 every 2 years**6.1 Service maintenance 2 - Easy Milk / Dynamic Milk****Easy Milk**

Maintenance set 33 2919 6000

No.	Designation	Order number	Number
Supply/exhaust air			
1	Fans machine	3325883000	1
2	Fan power stage	3316621200	1
3	Drain tube 2x 9.5 cm	0000480042	19 cm
Steam boiler			
4	Safety valve 5 bar	3328799099	1
5	T-piece	3326466000	1
6	Cable tie	3306493000	1
7	Cappuccino valve	3326941000	1
8	Easy Milk rinsing valve	3340814200	1
9	Closure (cover)	3326415000	1
10	O-ring	3340042000	1
Boiler			
11	Safety valve 16 bar	3322970099	1
12	Cable tie	3306493000	1
13	Brewing valve 10 bar	3340709000	1
14	Hot water valve	3340814000	1
15	Steam boiler feed valve	3340814200	1
16	Closure (cover)	3326415000	1
17	O-ring	3340042000	1
18	T-piece	3314457000	1
19	Release valve	3322745000	1

Dynamic Milk

Maintenance set 33 2919 9000

No.	Designation	Order number	Number
Supply/exhaust air			
1	Fans machine	3325883000	1
2	Fan power stage	3316621200	1
3	Drain tube 2x 9.5 cm	0000480042	19 cm
Steam boiler			
4	Safety valve 5 bar	3328799099	1
5	T-piece	3326466000	1
6	Cable tie	3306493000	1
7	Cappuccino valve	3326941000	1
8	Dynamic Milk rinse valve and proportional valve supply	3326940100	1
9	Closure (cover)	3326415000	1
10	O-ring	3340042000	1
11	Proportional valve	3340694000	1
12	Plug-in connection, proportional valve	3340193000	2
Boiler			
13	Safety valve 16 bar	3322970099	1
14	Cable tie	3306493000	1
15	Brewing valve 10 bar	3340709000	1
16	Hot water valve	3340814000	1
17	Steam boiler feed valve	3340814200	1
18	Closure (cover)	3326415000	1
19	O-ring	3340042000	1
20	T-piece	3314457000	1
21	Release valve	3322745000	1
Hydraulic unit			
22	Dynamic Milk hose set	3329191000	1

7 Service maintenance Choc/Topping after 6,000 mixer cycles

7.1 Maintenance set Choc/Topping

Maintenance set 33 2889 1000

No.	Designation	Order number	Number
Choc / Topping.			
1	Hose connector	3328726000	1
2	Mixer, complete	3328725000	1

8 Service maintenance Easy milk pump after 240,000 mixer cycles

8.1 Maintenance set Easy milk pump

Maintenance set 33 2887 9000

No.	Designation	Order number	Number
Milk pump:			
1	Gear pump set	3328879000	1

9 Descaling

The technician can carry out descaling using a descaling adapter (located behind the left-hand door and a silicone hose). A descaling tank (5l capacity) is needed and should be placed as close as possible to the machine.

Dosage is identical to the WMF 1500S (2 bottles of descaler to 3 of water).

Instructions:

Please also order a silicon hose for descaling 00.0048.0064 (8x2 1.5 meters).

The descaling is executed using a display-guided descaling routine.

Technician descaling:

The technician can carry out a reduced descaling at a higher descaling temperature using service routines after entering the master PIN.

Brief description of the display-guided descaling routine:

- Start the descaling routine
- Pressure reduction
- Descaling
- 3 rinsings

Special tools and aids

	Illustration (not to scale)
<u>Bridging connector manual insert</u> Item number 33.2628.9000	
<u>USB stick</u> item number 33 2492 5000 Formatting - The USB stick must be FAT32 formatted Maximum dimensions - The external dimensions of the stick must not exceed 52 x 14 x 5.5. This is to ensure that the USB stick can be inserted into the slot on the front panel, while at the same time allowing the elastomer cover of the front panel to be closed. The WMF USB stick meets this requirements.	
<u>WMF 5000S/8000S Multitool Service</u> Item no. 33 2586 8000 used to perform the following actions Move brewer	
<u>WMF 1500S/5000S Multitool:</u> Item number 33 2408 4000 used to perform the following actions: Unlock container Set grinding degree Turn grinder	
<u>USB mouse, keyboard</u> To simplify touchscreen entry, you can insert a USB mouse or keyboard into the USB slot on the front panel.	

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